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ORIGINAL ARTICLES.

CONSERVATISM IN OTOTOLOGY.¹

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DURING my term of service as house surgeon in Bellevue Hospital, many years ago, I was inclined to feel that, if the attending surgeon came to the hospital and decided not to operate at once on a case that seemed to me to demand immediate attention, such a man was either "growing old" or else had "lost his nerve." Although conservatism seems to belong more particularly to those who have had considerable experience, I am unwilling to plead that I am either old or that I have altogether "lost my nerve." In using the word conservatism, I do not wish to convey the impression that I am at present less inclined to operate than formerly, for such is not the case. "The time to operate" in otology is the most difficult problem for the aurist to solve, and I feel that in some cases there is too great a tendency to operate too early, rather than to try what conservatism can do.

During the past fifteen years, one would be surprised to read in medical literature of the number of operations that have attracted the attention of otologists throughout the world. It is only a few years ago that the medical journals were filled with reports of successful attempts to improve the hearing in cases of chronic catarrhal deafness, by excision of one or more ossicles. To-day this operation is seldom performed and is generally condemned, not only, as being of no benefit to the patients, but in many instances as having made the hearing worse.

Then again, electrolysis a few years ago was brought forward as a successful method of relieving this most unfortunate class of patients, but alas, with the same results. During the past few years the medical journals have been filled with reports of operations on the mastoid, the sigmoid sinus, the internal jugular vein and the brain.

Of late, the attention of otologists has been devoted to the so-called radical operation for the cure of chronic purulent otitis media, and it is to this class of cases that I wish more particularly to call your attention, for I feel that in many cases at least a cure can be brought about by more conservative methods of treatment. The radical, or so-called Schwartze-Stacke operation, consists in opening up the mastoid antrum by making an incision behind the ear as one would do in a mastoid case, and then by cutting away sufficient bone to

transform the middle ear, attic and antrum into one large cavity. The wound being closed behind, cicatrization is often hastened in this new cavity by means of skin grafts. This operation is one of the most important in otology, for, when properly and successfully performed, the patient can certainly feel that any future danger from an intracranial complication is practically impossible. To recommend, however, that this operation should be performed in every case of chronic purulent otitis media, is, in my experience, absolutely wrong.

In a conversation held a short time ago with a physician living near New York, I was very much impressed with a statement which he made in talking about patients with ear troubles. He said that since the number of operations had increased so materially during the past few years he had considerable difficulty in persuading his patients to go to the city for advice, for they felt that in consulting an otologist in New York the term simply meant that they surely would have to undergo an operation. When an operation once becomes, as it were, "fashionable or popular," there is always a great danger that it will be performed unnecessarily in many instances, and I feel that this is true not only of the mastoid operation, but more particularly of this so-called radical operation.

An erroneous impression is frequently conveyed to the mind of the general practitioner when he reads the reports of so many successful operations, and from the teaching of many he feels that an immediate operation is imperative in every case of chronic discharge from the ear. To illustrate this point, I would refer to a patient who recently came in great haste to my office and was in a very nervous state because the physician, whom he had seen in his town, had told him that he ought to be operated on at once as his life was in great danger. On questioning him, I found that he had had a discharge from one ear for years, and that the doctor had not even made an examination, but on the theory that a chronic discharge from the ear occasionally extends to the brain, had scared him most successfully. To show what can be accomplished in some instances at least, by conservative methods, I would call your attention to the report of the following cases:

Case 1.—Mrs. O., about fifty years of age, came to see me on October 2, 1901, and gave the following history:

Three years ago she had an abscess in the left ear and since then has had a discharge at times, for which she has received treatment; granulations have been removed at intervals.

When I first saw her in October she was in a

¹ Read at a meeting of the Society of the Alumni of Bellevue Hospital February 3, 1904.

very nervous state of mind, and had lost considerably in weight and general health, on account of the advice she had received from a specialist who, after an examination, told her that she ought to have an operation at once as she was likely to die at any moment from a brain complication.

On inspection of the ear, I found a moderate-sized perforation in Shrapnel's membrane with a slight discharge and very little odor. There were no evidences of a cholesteatoma and I was satisfied from an examination with a probe that there was but a slight roughness of the bone, and that a conservative line of treatment could safely be carried out.

She had no cerebral symptoms. Hearing for watch: right ear, 17 inches; left ear 1½ inches. Bone conduction increased on the left side. The right drumhead showed the usual evidences of a chronic catarrhal inflammation.

The patient was given tonics, etc., and the local treatment consisted in establishing good drainage from the attic and washing out the cavity with a bichloride solution 1 in 3,000 through a middle-ear syringe, and afterward injecting a solution of boric acid in alcohol into the attic. The discharge became less at once and her general health was very much improved. She was seen occasionally during the winter, and as the disease was yielding satisfactorily to the treatment I persisted until April 10, when the discharge ceased and cicatricial tissue covered over the roughened bone. The ear has remained perfectly dry during the past two years and she has required no further treatment. Her general health has greatly improved.

Case II.—October 13, 1902, H., a lawyer, forty years of age, consulted me on account of a chronic purulent discharge from the right ear, which he has had from childhood. He states that he has had a polypus removed several times; that the ear has discharged at intervals, but has been otherwise quiescent. The hearing for the watch was, right ear, 3½ inches; left ear, 51 inches. Bone conduction increased on the right side. Raised voice heard with the right ear 10 feet. An examination showed that a large portion of the posterior half of the drumhead had been destroyed, that there was a large opening leading up to the attic behind the short process, and that there was no obstruction to good drainage.

The only symptom which gave him any concern was a slight dizziness of late. A probe could easily be passed into the attic which revealed a slight area of roughened bone with some hypertrophied mucous tissue.

Before coming to see me he had consulted a physician who told him that he ought to have an immediate operation, otherwise he might die very suddenly. He said that he would like to postpone an operation until later in the year as he had some important law cases which occupied his attention. I told him that in my opinion he could do so. The same line of treatment was carried out as in the preceding case, viz., cauterizing the hypertrophied tissue and establishing good drain-

age and the use of the middle-ear syringe. In a month's time there was marked improvement. Two months later the ear was dry and has remained so ever since. The slight vertigo disappeared and was probably due to pressure on the foot-plate of the stapes caused by granulation tissue.

To prove that I am not at all opposed to operative interference in suitable cases, I would ask your consideration of the following cases:

Case III.—H. L., forty-five years of age, came to see me on February 20, 1900. He gave a history of having had an earache and abscess in the left ear ten years ago; ever since then there has been some discharge and of late there has been some odor. An examination showed a perforation high up in Shrapnel's membrane with evidences of carious bone. I explained to the patient that I was willing to try a conservative line of treatment, but that there was no doubt an operation would be the best procedure in this instance.

He preferred to postpone any surgical interference. I washed out the cavity with the middle-ear syringe and afterward injected various astringents, carrying out this line of treatment till the middle of May. The discharge ceased and he had no further trouble until October, 1901, when he returned to my office. At that time I found granulation tissue protruding from the former opening and I advised operation. From this time on until December 5 I tried to reestablish drainage to no purpose. Sagging of the upper wall of the canal took place and masses of cholesteatomatous material were removed frequently from the attic by means of a blunt curette.

On December 5, under ether anesthesia, I performed the usual Schwartze-Stacke operation, by cutting down on the mastoid process close to the auricle. The line of incision extended from the tip to a point about an inch above the superior attachment of the auricle. I opened the antrum with chisels and found a large cavity filled with cholesteatomatous material, all of which I removed. I transformed the antrum, attic and middle ear into one cavity and thoroughly removed all carious bone and ossicles, and included in this cavity the upper cells of the mastoid, leaving in situ the lower portion of the bony external auditory canal. I then divided the cartilaginous canal longitudinally. The wound behind the auricle was completely closed by sutures. Narrow strips of gauze were then packed through the canal into the middle ear so as to force the divided cartilaginous canal walls against the walls of the new cavity. A layer of gauze and cotton was then applied and the ear bandaged. The stitches were removed in a few days and the cavity was washed out regularly with a bichloride solution through the external auditory canal. In six weeks' time the entire cavity was healed and cicatrization had occurred. The patient has had no further trouble with his ear.

Case IV.—Mrs. D., a graduate nurse, about forty-five years old, consulted me on April 5, 1902, and gave the following history: In 1882

she went sea-bathing, and got water in her left ear. She had a severe earache attended with great pain, and followed by a discharge. She admits that she has neglected treatment. She had no further trouble until 1893 or 1894, when she had a recurrence of the pain and discharge. She has had pain repeatedly since then and there has been at times more or less discharge. Last January she had severe pain for eight days. At that time she came under my care and I have been looking after her since. The soft tissues of the upper canal wall were then swollen and drooping and I succeeded in removing cholesteatomatous masses from the attic through a perforation in Shrapnell's membrane. Granulation tissue was also excised. The indications for an operation were clearly marked, as there was an obstruction to the flow of a fetid pus, the cholesteatomatous material could not readily escape and there was considerable danger that the disease might extend to the brain.

She could not, however, then consent to an operation as she felt that she could not spare the time.

On April 5, however, the symptoms had become more marked; she had a troublesome tinnitus with considerable vertigo. She was also extremely nervous.

On April 8, under ether anesthesia, I opened the mastoid antrum and performed the Schwartz-Stacke operation (a short description of which I have already given). I found considerable cholesteatomatous material and a carious condition of the attic and ossicles. These masses were removed, also the ossicles and drumhead and the attic and antrum scraped with a sharp spoon. The patient stood the operation well, but suffered on the second day from extreme nausea and vomiting, which continued for several days. In two weeks' time the wound behind the auricle had entirely healed and six weeks later the middle-ear cavity was healed. I saw her in the following October and she was greatly improved in general health. The noise in the ear had ceased. She has had no further trouble.

Case V.—A. F., thirty years of age, came to see me on October 21, 1901, on account of a chronic discharge from the right ear, following scarlet fever in childhood. The hearing for the watch was, right ear, $2\frac{1}{2}$ inches; left ear, normal. Bone conduction increased on the right side.

An examination showed that there was a perforation in Shrapnell's membrane, which led to carious bone in the attic, and there was a very offensive discharge containing cholesteatomatous masses. I advised an operation, as it was impossible to establish good drainage and he was subject to frequent attacks of earache. November 23, under ether anesthesia, I made the usual incision behind the auricle and over the mastoid, and exposed the antrum. I removed the ossicles which were carious, as well as the remnant of the drumhead and cut away the upper part of the bony auditory canal. Granulation tissue and softened bone were removed from the antrum,

attic and middle ear, and the wound closed in the usual way. The cartilaginous canal was divided in a longitudinal direction, and pushed against the newly made cavity. The wound healed nicely and in six weeks' time the ear was entirely dry and has given no further trouble.

After the discharge has been cured by the Schwartz-Stacke operation, the patient's general health is usually very much improved, which is generally shown by an increase in weight, so that when this operation is clearly indicated, not only is the general health greatly improved, but the danger of an intracranial operation is practically impossible.

There are, however, several points that I would like to call to your attention this evening. In the first place, in considering the advisability of an operation in a patient suffering from a chronic otorrhea of long standing, we should determine first of all, as to whether the perforation is sufficiently large for the purpose of drainage. If the opening is large and we can readily pass a probe into the attic and find but little carious bone, I feel that it is our duty first of all to try to cure the disease by means of injections through a middle-ear syringe. There is but little chance of the disease extending to the brain, if the patient is properly treated.

Solutions of bichloride 1 in 3,000, should be used, followed by injections of boric acid in alcohol or iodoform and alcohol. Peroxide of hydrogen should never be used in such a perforation. Exuberant granulations should be removed, and everything done to establish good drainage. If, however, a patient comes to us, who complains of frequent attacks of earache, and on examination we find that good drainage is impossible, owing to a small perforation, and that the ossicles are carious, that the discharge is fetid and contains cholesteatomatous masses, and, moreover, if we detect a carious condition of the attic, we should, under such conditions, advise an immediate operation unless we feel that conservative treatment can be first attempted.

Occasionally, such a patient is apt to have frequent attacks of mastoid inflammation, as shown by sensitiveness on pressure over the mastoid process. In such cases, an operation is clearly indicated, for such a symptom shows that the disease has extended to the mastoid cells, and is likely to extend into the middle cranial fossa very rapidly, as the outer cortex of the mastoid in such instances is usually very hard and thick.

Other symptoms calling for an early operation, are headache, nausea, vomiting and vertigo. The danger of an intracranial complication is very much greater in hospital patients, for they generally wait until some serious symptoms develop. So that an erroneous impression is frequently conveyed to the mind of the general practitioner by the report of serious, and, in some instances, fatal cases of chronic otorrhea.

There is one other point to which I wish to refer, in speaking of conservatism, and that is, that in all operations on the mastoid process, and

in operations for brain abscess and sinus thrombosis, there is at the present time a great tendency to make too extensive incisions over the mastoid and in the neck, without any regard to subsequent disfigurement of the patient. If we remove too much bone from the mastoid we are liable to have considerable depression, and the auricle does not return to its natural position afterward, especially if we carry our incision too far upward, and curve it over the auricle in the temporal region.

In concluding, I would like to say that in every instance we should try to cure our patients without an operation, if possible, and we should remember that every operation is attended with a certain amount of danger.

In the Schwartze-Stacke operation there is always a chance of injuring the facial nerve, and while the paralysis is frequently only temporary, there is a possibility of its being permanent in certain cases.

INTRAHEPATIC CHOLELITHIASIS.

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(Continued from Page 209.)

Without going any further into details, it might be well to sum up the results of this investigation as far as I have gone. The observations are of decided theoretical importance. Here we have experiments similar to those of Mignot, Miyake, Italia,⁴⁰ and others, not in animals, but in man. In a process as intricate as that which leads to gall-stone formation, many are loath to accept all that animal experimenters observe, and with perfect justice, as there are decided differences between man and lower animals, differences which are not only chemical, but also anatomical.⁴¹ Moreover, the results in animal experiments have not been regularly successful, and, even recently, Wolynzew⁴² has reported complete failure.

In animals the cystic duct was obstructed, and bacteria introduced. In our cases the common duct was obstructed, and bacteria, that infest the lower one-third of the choledochus, spread into the system of ducts. In both cases stagnation is followed by inflammation—in both cases gall-stones are produced. In animal experiments, in the gall-bladder, in human beings, in the liver ducts. Thus we have the direct proof that gall-stones in man result from infection of the biliary system—that the gall-stones are the result of a local inflammation. Moreover, these cases show that there is something else that influences the production of stones, as all cases of stagnation and infection do not lead to stone formation. Whether this third factor is a diathesis, as the French authors say, or a disposition, as Riedel puts it, must be decided by the collection of a very large number of cholangitic cases, and by experimental work.

That there can be no difficulty in applying these same facts to gall-stone production in the gall-bladder is self-evident. What applies to the in-

trahepatic ducts, applies equally to the gall-bladder. The reason that stones form in the bladder so much more frequently than in the liver ducts is undoubtedly to be found in the fact that the local stagnation in the gall-bladder is a frequent occurrence, whereas stagnation in the liver is rare. Infection in the stagnant gall-bladder is also much more frequent than an intrahepatic cholangitis. These factors undoubtedly explain the greater frequency of gall-bladder stones. But in the gall-bladder, as the result of every cholecystitis, stones do not form; a similar third factor seems to play a part here, just as in the cholangitis cases.

Another point of theoretical interest is the fact that gall-stones do not develop in stagnant bile in the ducts, except when the inflammatory process is purely catarrhal, and fail to develop when the process is suppurative.

Recently Ehret and Stolz⁴³ found, in a case of cholangitis suppurativa no stone production, and in a case of purulent cholecystitis no cholesterol in the gall-bladder contents. To harmonize these findings with the experimental work in animals, the conclusion that mild inflammatory processes alone lead to stone formation seemed warranted. In my own, and in Kehr's cases, there is no doubt that stones developed in the intrahepatic ducts as the result of a suppurative cholangitis. As yet, however, there is no proof that a suppurative cholecystitis will lead to stone formation in the human gall-bladder. Such cases are operated, or are fatal before the necessary time elapses for stone formation, or they recover and no one knows what has taken place in the gall-bladder.

Both series of cases, Kehr's and mine, also demonstrate clearly that stones of good size can develop within three months, which is much faster than was thought, and more rapidly than Mignot (five to six months), Miyake (six to twelve months), and Italia (four months), succeeded in producing calculi experimentally.

From the foregoing it is evident that gall-stones are found within the liver ducts more frequently, and more regularly, than is generally admitted. They are perhaps always present, if a cholangitis develops secondary to obstruction of the choledochus by stones, provided the condition lasts longer than one month, gravel, in all probability, being present at an earlier stage.

In considering the structure of these intrahepatic stones, one is impressed, as said before, with the purely local shapes of many of the specimens. Though distinct tetrahedral stones are found mixed in with a lot of bile gravel, still many stones have shapes suggestive of their duct origin. These peculiarities have been touched upon before, in discussing the views of Charcot and Langenbuch.

In one of my cases (VI), in which the stones were as large as cherry pits, the stone nearest the porta hepatis was fairly well rounded, fitting tightly in the duct, while the stone situated next to it, and more centrally in the liver with regard to the choledochus, was distinctly, though irregularly, faceted, and of the same size. They both were brown in color, and contained pigment and

cholesterin. In another case I found one almost pure bilirubin calcium tetrahedral stone, hidden away in the ducts of the right lobe. In another instance the calculus was a long ovoid, containing pigment and cholesterin. Its color was black, and it looked like a miniature sausage, almost one cm. long. Peters⁴⁴ has reported distinctly branched calculi. At times, one finds the calculi still soft in the intrahepatic ducts, fitting these like molds, and composed of pigments and cholesterin. At other times the calculi seem conglomerates of bile gravel.

From the literature, the impression is obtained that intrahepatic stones are regularly composed of pigment, bilirubin, or its derivatives combined with calcium, but, from the above, it is evident that cholesterin here, as in the gall-bladder, is a very frequent factor. In the gall-bladder, pure cholesterin stones seem to form despite the fact that bile is present, as the cysticus is patent when the stone is discovered. It is difficult to understand how such pure stones can develop in the gall-bladder if bile is present, and just the same difficulty applies to the cases of pure cholesterin stones in the liver, such as Czerny⁴⁵ and Cassaet mention. The possibility of a secondary substitution of the bile pigment in the primary stones by the infiltration of cholesterin, may have a part to play in the production of these pure cholesterin calculi.

In the literature other peculiarities of these calculi in the ducts are mentioned as rarities. La-boulbène⁴⁶ and Peters have seen distinctly branched calculi corresponding with the pictures of casts of bile ducts from the interior of gall-bladder stones, portrayed in Thudichum's book. Naturally the latter are minute, microscopic even, whereas the former are not. Glisson had described a similar kind of stone in cattle, and it is spoken of as resembling coral. Calculi of tubular shape have been found, but these also are rarities.

The usual types are the pigment, and pigment and cholesterin calculi. They are small in the early stages, but if they remain in the liver they may grow to the size of cherry pits or hazelnuts. With these calculi are found deposits of pigment sand in the early stages, but later, when the bile streams on into the bowel, the sand may pass out and the stone remain imbedded in the liver duct. Facets are not regularly found, but as in several of my cases and in a number in the literature such facets are distinctly present. The method of their production is very obscure. Until a large number of such stones are gathered, and examined with great care, it will remain undecided. Probably factors similar to those in the gall-bladder are at work here. The general shape has been sufficiently discussed, as well as the frequent intimate relation between stones and ducts, but it must be mentioned that occasionally the ducts in the liver become irregularly dilated, little sacs form and the stones grow in these.

So much for the intrahepatic stones, their causation and frequency of occurrence. Another side

of this subject presents itself, and now we must see whether these little stones are of any practical importance. This has been denied on the one hand, and on the other it has been asserted by various clinicians, but the first operator to come in contact with them, provided the above analysis of his cases is correct, happened to be Kehr, and their presence in part affected his surgical procedure.

Such intrahepatic stones may remain in the liver, and this applies to those that develop there as well as those that wander into the liver from the bladder, and may cause absolutely no bad effects. They may, however, lead to a variety of results in the liver. On the other hand, they may wander, and perhaps here is the chief source of danger. Still it must be admitted that, though they may lead to unfortunate results as far as we know, in the past they do not seem to have done as much harm as one would expect, seeing how regularly they follow cholangitis and choledochus obstruction due to stone. Whether this phase of the question has escaped attention just because extrahepatic stones have not been regularly examined to determine their possible intrahepatic origin, and because the intrahepatic ducts have not been carefully followed and the condition of intrahepatic stones has been ignored, is difficult to say, though such an explanation is very likely correct. A great many difficulties are encountered in this realm and in years to come when we are more perfectly equipped we shall recognize the results that follow intrahepatic cholelithiasis more easily and more frequently. Still at the present day it is possible, by using the extensive literature, to arrive at some conclusions as to the possible results of such stone formation.

If we concern ourselves with the stones that move out of the liver ducts and become extrahepatic, the most likely result is that they will pass off into the intestine. Whether that is really true can not be determined at the present time. On the other hand, it is pretty generally conceded that these intrahepatic stones may wander into the gall-bladder and there act as the nucleus for larger stones. It can not be denied that many gall-bladder stones have a pigment nucleus, but to ascribe this to intrahepatic origin in every case would be unjustifiable. Thudichum has upheld the intrahepatic origin of these nuclei more energetically than anybody else. Lawson Tait⁴⁷ and Hein expressed similar views. The casts of ducts that Thudichum found inside of fresh gall-stones have not been found by subsequent investigators. Naunyn says he did not see them. I have been able to convince myself that one can wash out of the center of fresh calculi pigment masses of different shapes, some of which under the microscope are distinctly branched. They are not regularly found nor do they suggest casts of biliferous ducts, but rather a chance apposition of small pigment masses. Although this view of Thudichum has not gained great favor, as is natural seeing that the proofs are lacking, many authors are willing to admit that the intrahepatic bilirubin

calcium stones may form the nucleus of stones in the gall-bladder. Naunyn admits this without in any way invalidating his position with regard to Thudichum's theory. On page 49 he says: "The intrahepatic bilirubin calcium stones constitute a peculiar and separate group. They seem, not infrequently, to act as foreign bodies in the gall-bladder, and produce here the symptoms of cholelithiasis. It is, at least, very striking how frequently these small stones which form in the liver ducts are found as the nucleus of cholesterin stones in the gall-bladder. I possess several collections of 20 to 30 calculi from different gall-bladders, each calculus containing as nucleus such a bilirubin calcium stone."

More recently, 1899, Hoppe-Seyler has expressed a similar view. No doubt the nucleus of many gall-bladder stones contains material identical with that of intrahepatic pigment stones, but why should not the same chemical combinations be effected in the gall-bladder as result in the intrahepatic ducts? Bilirubin calcium stones occur in the gall-bladder as well as in the liver ducts, though seemingly even less frequently. The size of the nucleus and the material, as well as the frequency with which gall-bladder stones bearing such a nucleus occur point perhaps to a source for the pigment nucleus other than the gall-bladder. How regularly such an extra-bladder origin is present can not be stated.

Laboulbène's⁴⁸ and perhaps Cassaet's⁴⁹ cases show that this intrahepatic origin of gall-bladder stones is not pure hypothesis. Laboulbène found coral-shaped calculi in the bladder and similar smaller calculi in the "canaux hépatiques," which, according to Charcot, Bouchard and Brissaud,⁵⁰ is an instance of intrahepatic stones that have wandered into the gall-bladder and grown there. Chemically and physically the stones were similar. In both positions they were coral shaped and contained products of the oxidation of bilirubin and very little cholesterin. Cassaet's case is similar but less conclusive, as his calculi lacked the morphological identity of structure. Still he concludes: "*Pour parler plus exactement les gros calculs n'étaient formés que par la conglomération des petits.*"

It is evident from all this that one of the distinct dangers of an intrahepatic stone formation lies in this wandering into the gall-bladder and there growing into an adult stone. Another danger rests in these stones remaining in the common duct and growing there.

It has been the custom to underestimate the importance of smaller calculi, as they, being small, would naturally pass into the bowel. Since it has become appreciated, however, that the symptoms of gall-stones owe their origin to inflammation, that biliary colic does not mean a rough stone working its way into the intestine but inflammation and impaction, the smaller stones have been found at the bottom of much trouble. Deaver⁵¹ has put this very distinctly, saying "the presence of a calculus, even if insufficient in size to produce jaundice, will

impair the drainage of the duct and induce a train of symptoms causing chronic invalidism."

In Riedel's⁵² recent book a similar appreciation of small stones is found on page 102, where, in speaking of the treatment of stones in the choledochus, he says: "Nothing is more liable to lead to unfortunate consequences than the breaking or crushing of a stone in the choledochus, as all the fragments can not be removed. If one fragment remains in the duct, the result of the operation is nil."

In another passage he tells of cases that had to be operated a second time when after a new attack minute stones that in the first operation could not be felt in the choledochus were removed.

These are not isolated views, but many of the most experienced gall-stone surgeons have come to these same conclusions. Thus it is evident even the small intrahepatic stones may lead to trouble here in the choledochus. How often they will do so is another question. That it is a danger can not be denied. Perhaps the serious results in such cases as Kehr reports are really due to intrahepatic cholelithiasis and impaction of an intrahepatic calculus at the papilla and not due to a stone being left by oversight in the choledochus at or after the operation.

Kehr's assistant, Berger, has undoubtedly gone too far, in saying that every stone and every fragment that is removed by hepatic drainage means the prevention of a certain relapse.

If that were so, seeing how frequently intrahepatic stones form in the cholangitic and obstructed ducts, we would have heard, it seems to me, of more recurrences after choledochotomy without hepatic drainage, for even Kehr, before he used this form of drainage, did not have anything like the percentage of recurrences that Berger's statement would indicate. Berger's enthusiastic conclusions can not be shared.

From the above analysis, however, I think that one is justified in saying that intrahepatic stones may wander into the common duct and cause trouble there just as well as they can get into the gall-bladder and become the nuclei of larger stones. These two consequences are, no doubt, the most important and most frequent unfortunate outcomes of intrahepatic stones, provided they move out of the liver and do not get into the duodenum. If they remain in the liver, they may cause no trouble at all, as in my case of stones in the left lobe of the liver, without any bad effects either in the organ or clinically. On the other hand, there is no doubt that such calculi may be a source of danger, even if they remain in the liver.

These dangers are chiefly in the nature of inflammatory changes, whether they establish a locus minoris resistentiæ, or whether by developing in the smaller infected ducts they cause retention in the more central part of the duct, while the rest of the system is freed by removal of the obstruction of the choledochus, is unknown.

Langenbuch,⁵³ in speaking of stones in the

ducts, writes: "Such wanderers remain in their new site and lead to decubitus and abscesses or the flow of the bile drives them back into the common duct." Such ulceration about a calculus might lead to structure of the duct and formation of fresh stones deeper in the liver. Stones that remain in the liver may lead, at the place they are impacted, to a marked inflammatory reaction in the adjacent tissues, so that "cysts with thick, firm walls develop, enclosing the calculus, while the parenchyma in the vicinity remains normal or becomes indurated, or undergoes degenerative changes." Frerichs has also called attention to the possibilities of such stones causing pyelophlebitis and abscess. Geigel⁵⁴ emphasized the relation of the vessels about the ducts to the portal system and the possibility of liver abscesses from this source. Budd had previously called attention to this. In such a way intrahepatic stones may lead to abscesses in the liver as well as by the purely local pericholangitis about the intrahepatic stones.

How often intrahepatic stones lead to abscess is as yet unknown. There is no doubt that gallstones are found in hepatic abscesses, but in these cases the examination of the intrahepatic ducts has been disregarded, so that it is impossible to decide whether stones resulted from the abscess or led to the same, though the latter view is the more likely.

If intrahepatic stones get lodged in the larger ducts in the left or right hepaticus they might lead to the results Nasse⁵⁵ obtained after ligation of one of these. Courvoisier reports an atrophy of the liver in some of these cases. Perhaps it is the analogue of the experimental atrophy produced by Nasse.

Whether stones in the hepaticus proper are of gall-bladder or hepatic origin is still disputed. Most authors favor the former view, whereas Naunyn, though he says that the gall-bladder is the usual origin of hepatic stones, still admits an intrahepatic origin of some of them.

From all the above it is clear that intrahepatic stone formation, as well as the wandering of gall-bladder stones into the liver ducts, may lead to a variety of unfortunate consequences which may be of the greatest moment to the patient. Perhaps the most likely result is a recurrence of the patient's gall-stone symptoms, due to wandering of intrahepatic stones into the gall-bladder or into the common duct. Time will show how important this is as a factor in the so-called "Recidivs," which have been so frequently magnified by the internists and so persistently minimized by the surgeons.

If Naunyn's theory of the purely local inflammatory cause of gall-stones were true, one would expect that the inflammation that leads to the first gall-bladder stones would repeat itself and result in fresh stone formation. If such a fresh stone formation occurs the future of operated patients, provided of course the gall-bladder is not removed, is not certain. Such a new formation (a true recurrence) must be distinguished from a

false recurrence or a recurrence of symptoms due to unremoved stones or to secondary and postoperative adhesions, herniae, etc. This distinction is, of course, very difficult clinically, but it must be insisted upon if the question of real recurrences is to be definitely settled. Internists have been citing cases as real recurrences where, as Kehr has repeatedly pointed out, no certainty could exist as to the complete removal of all the stones. In answering the question one must use the cases in which a radical operation has been done. As Kehr says, in all cases operated in the acute stage, as well as in all cases not operated by ectomy and hepatic drainage, stones may be left in so that these cases can not be used in discussing actual new formation of stones.

Czerny, Körte, Poppert, Riedel and Kehr (1900) have reported no real recurrences, and, as said before, they are inclined to think such a new formation is very exceptional. Naunyn,⁵⁷ on the other hand, says, "Even if all stones are removed, that does not prevent a new formation of stones." It is evident from the cases of intrahepatic stones that Naunyn's view is correct, that the stones in the liver are produced at a time when the other stones are in the gall-bladder and more or less independent of the bulk of these. The intrahepatic stones that develop there are theoretically, and at times clinically, real recurrences.

In addition to this evidence of a fresh production of calculi other evidence is found in the stones in the gall-bladder. Leichtenstern said that "in the great majority of cases the formation of stones is effected at one time, and that process is not repeated during the rest of the patient's lifetime." Or, as Naunyn says, "The calculi in a gall-bladder are usually, as Hein and Bramson pointed out, both of the same age and of the same composition."

No doubt these statements are in part true, but it is just in the exceptions that we see the production of stones at different times. In one gall-bladder, for instance, I found a large number of stones which varied in size from a walnut to a pea, but the intervening or intermediate sizes were remarkably definite, so that I could, without the slightest difficulty, divide the stones into five groups, according to their sizes. The composition and layers of the stones did not correspond, and the largest stone was pure cholesterin and the others were mixed. Not only was this ready division and separation possible, but the number of representatives of each generation of stones varied, so that the largest and oldest stone was single, the next generation and next in size represented by eight, and so on to the pea-sized stones, that were most numerous, numbering over 100 in all.

No doubt everybody has seen similar stones repeatedly, but Riedel,⁵⁸ with his large number of cases to draw from, shows that this arrangement is very frequent. He says: "Multiple generations were observed in ten instances (31 per cent.)." Thus in 326 cases that could be used for this estimation, he found multiple generations in one-

third of the cases, just as frequently as he found one to three stones in the bladder. This is excellent proof that the possibility of gall-stone production at different times exists.

The cases of gall-bladders in which silk sutures have been left at operation, and stones formed about them, are equally good proof that stones may form again. These facts and the relation of intrahepatic cholelithiasis to extrahepatic must be considered in the discussion of real recurrences. The possibility of such new formation can not be denied. How often after cholecystostomy it occurs, in the gall-bladder, is a problem of the future, just as the determination of the frequency of the advent and growth of intrahepatic calculi in the gall-bladder.

The most radical method of dealing with gall-stones, and the one which aims at getting rid of all these dangers, is that advocated by Kehr. If the gall-bladder is removed, no stones can form there again. If to ectomy is added choledochotomy and drainage, stones in the ducts which have or have not caused symptoms will be removed by the operation or by the subsequent drainage of the choledochus and hepaticus. This combination of operative procedures has proven very successful, as far as immediate results are concerned. In 17 per cent. of his 93 cases during the after-treatment stones and fragments have been removed by lavage and drainage of the ducts. A suture of the choledochus at the operation would have run the risk of recurrence in many of these cases.

As yet no method seems to approach this in its ability to deal with the secondary intrahepatic formations, as well as the stones that may have wandered into the intrahepatic ducts from the gall-bladder, and even though it may fail to remove all of these, as was shown by autopsy in one of Kehr's patient's, who died some eight days after the operation, still it surely does much more for the prevention of "Recidivs" from this source than any other method. In cases of cholangitis the drainage of the hepaticus must be carried out if these new fragments and stones are to be removed.

A large number of cases of stone in the common duct that have had signs of obstruction have also had cholangitis, and although at the time of operation no sign of cholangitis is present, the intrahepatic stones must be considered and dealt with. From an examination of the bile obtained at operation, unless done under the microscope and by biological methods, one can not be sure that a cholangitis is not present.⁵⁹ Moreover, as Riedel⁶⁰ has recently shown, a most extensive suppurative cholangitis may be present and give no symptoms. He saw three such cases, and one of my own resembles Riedel's series.

Opinions of surgeons are still at variance as to the advisability of drainage of the hepaticus. Some oppose it except in the severest cholangitic cases, while Kehr considers it the ideal operation in non-acute cases, even if cholangitis is not present. From the cases brought together in this paper,

from the study of the causation of intrahepatic stones and their possible relation to recurrences, as well as to future changes in the liver, it would seem that drainage of the hepaticus was the only method of operation for even mild cholangitic cases as well as for cases that have had symptoms of choledochus obstruction and cholangitis at some previous time, though the immediate cause of the present operation may be in the gall-bladder itself.

Another practical conclusion can be drawn from this study. Courvoisier said that a choledochus obstruction should be relieved at an early date to avoid the formation of intrahepatic stones. Here we are between two fires. As is well known, early choledochotomies are liable to lead the operator into trouble. The duct may be empty, the stones having passed, or the duct may be filled with countless stones. When a stone and cholangitis are certain an operation before the second month naturally would avoid the danger of intrahepatic stones forming and future trouble. This problem, purely therapeutic in character, scarcely enters the scope of this study, though the decision as to when to operate is of great interest and importance. It must, however, be emphasized that the earlier the operation the less danger there is of intrahepatic cholelithiasis.

In closing, I wish to express my gratitude and thanks to both Professor Ghon and Docent Stoerk for their many kindnesses.

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OBSERVATIONS ON DILATATION OF THE STOMACH AND ON GASTROPTOSIS.¹

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THE subject of this paper, "Dilatation of the Stomach, Gastroptosis and a Discussion of the Methods of Physical Diagnosis in Diseases of the Stomach," would seem to me to be of interest not only to the specialist and the surgeon, but also to the general practitioner of medicine, upon whom the first diagnosis of the case depends and upon whose judgment so much responsibility is placed.

My paper is the result of a series of observations made during the course of my service in gastro-intestinal diseases at the Manhattan State Hospital, West, Ward's Island. It also includes cases from the Manhattan State Hospital, East, which institution I am visiting for Dr. Thomson.

These two hospitals have as inmates over four thousand patients, male and female, equally divided, and furnish a fruitful field for investigation into the gastro-intestinal tract. I have also secured valuable material from my service in diseases of the stomach, at St. Bartholomew's Clinic and in my private practice.

I feel that I owe much to the courtesy of Drs. Dent and Macdonald of the Manhattan State Hospital and to the assistance of Drs. Delacroix, Meager, Holmes and R. Haviland of the staff. My associates, Drs. John E. Traub and C. T. Graham-Rogers have visited these institutions with me and assisted in my researches, and I have also received many valuable suggestions from my friend, Dr. Achilles Rose.

About a year ago, Dr. William H. Thomson first instituted a thorough research into the etiology of epilepsy at the Manhattan State Hospital, West, Ward's Island, and later extended his researches to the East Hospital. I was requested to take charge of that part relating to the gastro-intestinal tract. We expect, however, to continue this work for a considerable period of time, but as I have secured some rather interesting data from these institutions, as well as from other investigations, I felt that I should report them.

I would first call attention to the unfortunate

fact that it has too often been the habit to depend on the examination of the stomach contents alone and to neglect the investigation of the motor functions and position of the stomach itself. As we shall demonstrate later, a prolapse of the stomach may exist without discoverable nephroptosis, and often with no enteroptosis that is detectable by the ordinary means of physical diagnosis. However, when a ptosis of the stomach exists, the intestines must necessarily accompany it.

We may find a hyperacid condition of the stomach, with the organ in its normal position; the same may occur with dilatation of the stomach and again hyperchlorhydria (hyperacidity) is a frequent concomitant of gastroptosis.

On the other hand, hypochlorhydria (or diminished acidity) may occur in a stomach occupying the normal position, also an organ that is dilated and in gastroptosis. Dr. Rose, for example, has demonstrated that certain symptoms attributed to gastritis may be due to gastroptosis. Cases of achylia gastrica have been reported, in which the stomach is diminished in size—including its containing capacity, the organ occupying the normal position. We have Dr. Einhorn's classical case, with practically no symptoms except rumination and a coated tongue. We have, furthermore, achylia gastrica in cases of marked dilation of the stomach and the same condition existing with gastroptosis.

These facts demonstrate that mere chemical analysis of the stomach contents is insufficient; but that we must in addition carefully investigate the motor functions and the position of the organ, in order to arrive at an accurate diagnosis and give a correct prognosis and proper treatment.

ATONY OF THE STOMACH.

It would seem to me of importance to discuss for a few moments "atonia gastrica" or "atony of the stomach," since this condition must necessarily first occur before dilatation of the stomach is produced. Even when a spasm, or stenosis of the pylorus is the cause of the dilatation, a mechanical atonic condition of the muscles of the stomach from exhaustion due to the resistant action of the pylorus, must occur before dilatation takes place. Atonia gastrica may be defined as a loss of tone or contractile power of the muscles of the stomach, so that the organ is distended and does not contract about its contents, with a resulting motor insufficiency.

Dr. Rose states that "atonia gastrica, dilatation of the stomach and gastroptosis are identical." I think that by this he means that dilatation of the stomach and gastroptosis are progressive degrees of atonia gastrica, and in this sense I agree with him.

In gastroptosis, I am aware that some dispute the dilatation of the organ; but my own observations cause me to state that such dilatation exists, as does necessarily varying degrees of motor insufficiency. It is inconceivable that in a condition of splanchnoptosis—a general relaxation and atony—with a descent of the viscera, that the

¹ Read before the Medical Association of Greater City of New York, March 14, 1904.

² Received for publication April 26, 1904.

stomach, as a matter of selection, should be exempt.

On the other hand, nature is a most beneficent mistress and affords us, literally speaking, many compensations—the most common example—compensatory hypertrophy in cardiac dilatation. Furthermore, in gastric conditions, we may have normal digestive functions, when examination has demonstrated that gastroptosis exists. There may be achylia gastrica without subjective symptoms. Finally cases which on examination show dilatation of the stomach, apparently suffer from no motor insufficiency, since within a brief period after administration of the test meal, practically no remains can be aspirated from the stomach. Whether this condition is due to a relaxed condition of the pylorus, or to a compensatory hypertrophy of the dilated stomach, is still a disputed question. Atonia gastrica, according to Dr. Einhorn, may occur as a complication of chronic gastritis, hyperchlorhydria (hyperacidity), neurasthenia gastrica, tuberculosis, heart disease, or any weakening affection and as a primary neurosis. My own observations lead me to state that the unfortunate habit of "bolting the food" may be an etiological factor.

As symptoms, there may be headache, diminished appetite, eructations of gas, a feeling of fullness after meals and constipation. Splashing sound is present and chyme is found six or seven hours after Leube's test dinner; others find it present also, two or three hours after Ewald's test breakfast. If, however, an hour after the latter, and we find 100 c.c. or more of contents associated with the above symptoms, we may consider the condition as atonia.

The stomach is found empty in the morning—in the fasting condition. Boas describes the descent of the greater curvature on the addition of water as a reliable symptom, but other disagree with him. Butler believes that atony of the stomach gives as symptoms motor insufficiency and moderate dilatation. It would seem, however, that the condition has not yet progressed to dilatation.

As to the splashing sound as a constant symptom of atony and as an aid to diagnosis, Drs. Einhorn and Rose have demonstrated that this is not always present, and also that it exists in many persons not troubled with digestive disturbances. Dr. Einhorn states that they have examined a hundred cases in regard to this special point. When present, however, it is an aid in locating the position of the stomach. Furthermore, to quote Dr. Einhorn, "In normal conditions a splashing sound can sometimes be produced by striking the abdomen with the hand." On examining the patient in the fasting condition, the existence of the splashing sound is of value in showing that the stomach is not empty and hence abnormal. This, however, is not a reliable sign and I perfectly agree with Debove and Redmond that sometimes, although rarely, the stomach may be found empty notwithstanding a splashing sound. Moreover, the absence of this phenomenon in the fasting condition

does not by any means warrant the conclusion that the organ is empty, etc.

During my service at Ward's Island I have found the splashing sound to be absent in at least 40 per cent. of my cases of dilatation of the stomach and gastroptosis. They were proved to be such by both symptoms and transillumination of the organ. Splashing sound is of service when demonstrable, but unfortunately is quite frequently absent.

The treatment of atony of the stomach comprises hygiene, regulation of the diet, massage, hydrotherapy, electricity and the administration of strychnine.

DILATATION OF THE STOMACH.

Having described atony of the stomach at considerable length, believing it to be the preliminary stage, so to speak, of dilatation, we will now speak of dilatation of the stomach.

In effect, when do we consider a stomach to be dilated? Is it to be measured by its capacity alone, or by its capacity plus the alteration of its functions?

The capacity of the stomach is an extremely variable quantity. Ziemssen has shown that a stomach may be normal and only contain eight ounces, whereas another stomach, also normal, may possess a capacity of a couple of quarts. Boas has demonstrated that an apparently dilated stomach may really be in a condition of compensatory hypertrophy. We may, therefore, state the rule, *As long as the functions of the organ are normal, we cannot regard the conditions met with as pathological.*

In reference to the stomach itself, what is the chief point of differential diagnosis between dilatation of the organ and gastroptosis? Is it the degree of the descent of the lower border of the stomach? By no means. We see cases in whom the lower margin of the dilated stomach may have descended further than a stomach which is in the condition of ptosis.

In dilatation of the stomach the lesser curvature maintains its relation to the diaphragm. The muscular fibers first elongate in the vertical direction and the distance between the lesser and the greater curvature is increased. Dilatation may also ensue in the transverse and anteroposterior dimensions and the pylorus may be a little further to the right and in a slightly lower plane—but in general, *the lesser curvature maintains its relation to the diaphragm*, and this is the differential point between dilatation and gastroptosis. This feature is best demonstrated by transillumination of the stomach. Some authorities also claim that during transillumination the light follows the respiratory movements with dilatation, but does not do so with gastroptosis, and consider this a second differential point. My own observations do not confirm this view.

On the other hand, with gastroptosis the suspensory ligaments of the stomach are relaxed and the entire organ sinks; the lesser curvature as well as the greater, and in aggravated cases the lesser

curvature looks inward, to the right; the greater curvature, outward, to the left, and the pylorus may often lie below the level of the umbilicus. I have already given my views regarding atony and dilatation in cases of gastroptosis. The ptosis of the intestine, which is attached to the pylorus, readily explains the semi-rotation of the stomach on purely mechanical grounds. Curiously enough the vertical stomach is a return to the fetal position of the organ.

I might state that, though Dr. Einhorn employs the term *ischochymia* (retention of chyme) in place of dilatation of the stomach, I prefer the latter nomenclature, as more generally accepted. In addition, the retention of chyme is the result of the condition—the atony and dilatation.

I would furthermore call your attention to the claim of certain of our specialists that no dilatation occurs unless there is obstruction at the pylorus, either spasmodic or mechanical. In reply, I would state that we are all familiar with cases of chronic gastritis with dilatation of the stomach—in which there is no pyloric obstruction. I can show you numerous such cases at any of my clinics at Ward's Island. Furthermore, these gentlemen seem to forget the anatomical arrangement of the muscular fibers of the stomach, with the increased thickness and strength at the pylorus. In the atonic condition it is to be expected that yielding should occur at the points of least resistance, according to the ordinary laws of mechanics. The explanation is extremely simple and the theory held by these gentlemen would seem to me to be untenable, both on mechanical and clinical grounds.

In the discussion of dilatation of the stomach, I wish to first briefly refer to acute dilatation, upon which we may state there is comparatively little literature.

(1) There is acute dilatation as described by Einhorn, found as a result of acute inflammation of the mucous membrane of the stomach, due to errors of diet. It seems uncertain whether the dilatation is a result of pyloric spasm, or paralysis of the gastric muscles—possibly of both.

(2) Riegel describes a post-operative dilatation, especially following abdominal section. Some of the symptoms are apparently those of obstruction and yet secondary operation has demonstrated that such does not exist. The stomach is enormously distended with gas and there is vomiting. Lavage is of special value, as are also enemata, or irrigation of the bowel. This class of cases would seem to me to be the manifestation of an atonic condition, a paresis, so to speak, of the entire gastrointestinal tract, the stomach as well as the intestines being distended. Dilatation of the stomach I believe to be an important factor and the general condition seems to correspond to our former nomenclature of postoperative intestinal paresis, which might be more correctly called gastrointestinal paresis.¹ It would seem to be due to

some shock of the sympathetic system, from the operation; at times to the anesthetic and later to uremia, or to sepsis.

(3) A third type of acute dilatation of the stomach which I have personally observed on several occasions, is in typhoid fever. In these cases there is not only acute distention of the stomach, but of the intestines as well. I can recall one case in which enormous distention of the stomach occurred, great quantities of gas being belched from that organ. The intestines also became suddenly distended, there were rapid respiration and a rapid and feeble heart with some shock. The differential diagnosis lay between acute gastrointestinal distention and perforation of a typhoid ulcer. In many cases, I believe it nearly impossible to differentiate this condition from perforation, until the existing distention is relieved. In fact, I am cognizant of a case operated on at one of our large hospitals, there being the condition of dilatation as described above. No perforation was found and the patient died of postoperative shock. One important point in the diagnosis is, that perforation is first followed by local rigidity of the abdominal wall, which later becomes general. Hot stupes, hot drinks and enteroclysis are of value in relieving the distention. At times lavage, or the introduction of the stomach tube to relieve excessive gastric distention may be found necessary.

(4) A type of acute dilatation of the stomach is described by Mangelsdorf of Bad Kissingen. He examined over four hundred persons suffering from migraine, and found acute gastric dilatation during the attack. He also discovered this same condition just preceding many attacks of epilepsy. An excellent abstract of his article will be found in a recent number of *The Post-Graduate*, translated by Dr. Achilles Rose.

(5) Acute dilatation of the stomach may occur during the course of pneumonia, or other pulmonary diseases, and in such cases on account of interference with the respiratory and cardiac functions may become a source of real danger. Indeed, the dangers of tympanites in pneumonia have been described by Broadbent and others. The stomach undoubtedly takes an active part in this distention and L. Emmett Holt, for example, calls our attention in his recent work on "Diseases of Children," to the dangers of dilatation of the stomach in pulmonary diseases. Regulation of the bowels, diet and gr. V doses of resorcin in adults are of value to prevent gas accumulation.

(6) In infants and young children, convulsions from overloading the stomach are not uncommon and emesis often produces immediate relief. I have noted acute distention of the stomach in these cases. Such attacks, continuously repeated, I believe may predispose to the convulsive habit and be a factor, in some cases, in the production of epilepsy.

(7) Acute dilatation of the stomach from indiscretions in diet may result in a cardiac attack, in effect be the cause of a pseudo-angina. I have at present a patient whom I have attended for

¹This type of acute postoperation of the stomach, on pages 453 and 454 of *International Medical Annual*, 1904. An abstract from Walsberg from the *Arch. f. Klin. Chir.*, Bd. 66.

over ten years and whom I have had under careful observation during at least twenty attacks. In these, the stomach is enormously distended with gas, there is belching of wind, escape of gas from the rectum, the heart action is rapid and feeble, the respiration rapid and labored. Emesis at once affords relief.

On a number of occasions the patient became entirely unconscious and extremely cyanotic. Only six weeks ago she had such an attack. While still unconscious she vomited a large amount of undigested food and there was an enormous escape of gas by mouth and rectum. There was immediate relief from all the symptoms. Cheese soufflée, mushrooms, and rich desserts, all taken against explicit orders, having produced these attacks. There was no neurotic element in the case.¹

Finally, I shall merely refer to tetany and to tonic and clonic convulsions occurring with dilatation of the stomach, as described by Dr. Einhorn. The causes of these attacks are still in dispute, auto-infection and other factors being given. It suggests itself to me that in part we may offer as an explanation a sudden *acute hyperdistention occurring in a chronic dilatation* of the stomach, as an etiological factor, and as the attacks are acute, I have placed these cases under the heading of acute dilatation.

ETIOLOGY OF CHRONIC DILATATION OF THE STOMACH.

Nothnagel holds the view that some of our cases of dilatation of the stomach have existed for many years and that it may be traced back to improper methods of feeding at an early period of life.

In this regard, I wish to call to your attention the average capacity of the stomach in infancy, as described by Dr. L. Emmett Holt: at birth, one and a half ounces; at three months, four and a half ounces; at six months, six ounces; at twelve months, nine ounces. In the act of nursing, the baby works for its dinner, so to speak, and the process is slow. On the other hand, milk is taken from the nursing bottle with greater ease and with much greater rapidity and the infant is often assisted by the fond mother, or nurse, by "tipping" the bottle to an extreme degree. You will appreciate that I am now speaking of the mere mechanics and not of the quality of the food. In addition, I have often seen a nine-ounce bottle of milk given at one feeding to a baby six months old, or even younger, when the stomach capacity is much less than that of the milk bottle. Fortunately beneficent nature again intervenes in most cases and the stomach ejects the excess of food. Over-feeding and chronic indigestion are causes of dilatation of the stomach in infants and in young children and a great responsibility therefore rests upon the family physician, in the proper regula-

tion of the food of the young patients entrusted to his care. Rickets is another causative factor in the production of dilatation of the stomach.

In young children, as I have already called to your attention, acute dilatation of the stomach may be productive of convulsions. Holt believes *intestinal putrefaction exciting convulsions* in children to be an important etiological factor in the production of epilepsy. Acute dilatation of the stomach with resulting convulsions, I believe to be a strong factor when frequently repeated in producing the convulsive habit, and some cases of epilepsy can certainly be imputed to this. In fact this will explain some hitherto obscure cases. Moreover, chronic dilatation of the stomach is, in itself, one of the causes of intestinal disturbances and of intestinal putrefaction.

Personally, I have no patience with the term "idiopathic epilepsy," believing that this is merely a confession of ignorance.

Among other etiological factors of chronic dilatation of the stomach are chronic gastritis, atonia gastrica and the "rapid bolting" of food. The latter frequently occurs among patients suffering from nervous derangements and is often a cause of gastric disturbances and of dilatation. On the other hand, dilatation of the stomach, with accompanying intestinal putrefaction are in turn frequently etiological factors in the production of nervous conditions. Spasm of the pylorus due to an ulcer and benign and malignant stenosis of the pylorus are additional causes of chronic dilatation of the stomach. With such dilatation there may be chronic gastritis, hyperchlorhydria (hyperacidity), mold in the stomach, hypochlorhydria (diminished acidity), achylia gastrica, or marked fermentation. Personally, I only practise lavage in cases with chronic gastritis with the production of excessive mucus, or where there is much retention of food with fermentation. I believe that stomach washing is too often overdone. Calined magnesia with bismuth subnitrate for the mucus; resorcin for the fermentation, at times combined with bismuth, or benzoate of soda, as an alternative and olive oil in cases of benign stricture as a palliative, are of value. Each case should receive the treatment appropriate to the existing condition. Hygiene, diet, massage, electricity (intragastic preferably at times) and proper regulation of the bowels are of value. Hydrotherapy will often be found useful to tone up the general condition. I believe that the domain of surgery should be somewhat enlarged, for example, in some cases of gastroptosis and stomach dilatation and that a certain class of cases of chronic gastritis with marked dilatation and excessive production of mucus, which do not yield to prolonged treatment, might receive benefit, from proper drainage by gastrointestinal anastomosis. I have in view one such case on my service at the West Hospital.

GASTROPTOSIS.

In speaking of gastroptosis, it is not my intention to describe typical Glenard's disease, enteropptosis, gastroptosis and nephroptosis, with the

¹ I have recently had under observation a case of rheumatic endocarditis, complicated with sudden attacks of tachycardia—the pulse running from 210-250 per minute. Careful observation demonstrated that these attacks were due to acute dilatation of the stomach from overdistention with gas. These attacks have been entirely eliminated under proper diet and the administration of resorcin.

symptoms as given in the text-books, but to refer only to those cases which vary from this fixed type so familiar to you all. There may or may not be nephroptosis, and enteroptosis in some cases cannot be detected by the ordinary methods of physical examination. Ptosis of the stomach, however, is present and, of necessity, enteroptosis accompanies it. The symptoms point chiefly to the stomach.

Hyperchlorhydria (hyperacidity) hypochlorhydria (diminished acidity) or achylia gastrica may all occur in gastroptosis. This is also true of dilatation of the stomach and hence the determination of the position of that organ, in order to secure the best method of treatment, is of great importance. Transillumination of the stomach I consider the most scientific method of differentiation between these conditions.

The question has arisen in my mind as to whether the ptosis of the intestines invariably precedes the descent of the stomach, as is described by Glenard, and whether in some cases of chronic dilatation of the stomach the ligaments may not gradually stretch and ptosis of the stomach follow, as a primary condition, and enteroptosis be the sequel. In Case XXIX. an excellent picture of the stomach was secured and the pyloric end was clearly seen. The lesser curvature had lost its relation to the diaphragm, but just barely so, the stomach was dilated and no nephroptosis or enteroptosis could be detected. The change in position of the lesser curvature constituted a gastroptosis, slight as it was. I have seen two similar cases and these facts are certainly suggestive.

Furthermore, in gastroptosis, I believe we have the chief etiological factor in "mucous colic." Ewald has pointed out that ptosis of the colon frequently exists in this condition and Einhorn has demonstrated that gastroptosis is present in a large percentage of cases of "mucous colic," as is also achylia gastrica. Mucous colic is present also in many cases of Glenard's disease. Mucous colic is not present in all cases of gastroptosis, any more than is hemorrhage in all cases of typhoid fever. All cases of mucous colic are neurasthenic, but all cases of neurasthenia do not suffer from mucous colic.

On the other hand, there must be an underlying cause both for the neurasthenia and the mucous colic—since these two constitute, I believe, a "vicious circle" and react on each other.¹ As far as my own experience is concerned, I have been able to demonstrate gastroptosis as an etiological factor of mucous colic. The abnormal secretion of the stomach undoubtedly aggravates this condition.

It would seem that the ptosis of the intestines, which of necessity accompanies the gastroptosis and the resulting changes in the caliber of the lumen of the gut at various points, fully explain

the cramp-like effort to expel the mucus and the tubular-cast shape of the mucus which we see at times. Furthermore, injections of olive oil appear to relieve the attacks of colic, just as it does given by mouth, in the case of stenosis of the pylorus. I do not believe the mucous discharge is due to a true inflammatory condition, but to changes in the circulation due to the abnormal position of the intestines. Where there is a narrowing at one point there must of necessity be a dilatation and congestion in the intestine above it.

I believe that adhesions, rectal obstruction, or irritation and other such causes given by our authorities, are merely accessory factors in the vicious circle.

During the acute attack, rest, antispasmodics, such as asafetida and light diet, as suggested by Dr. Thomson, are of value. Later, small doses of castor or olive oil, given internally, have an excellent effect. High enemata of olive oil are of service, alternating with irrigations by the Kemp tube of normal saline solution, weak flaxseed tea, or gum arabic solution (3ii. to 3iii.) to the quart of warm water. I have had excellent results from the injection of carbonic acid gas, as advocated by Dr. Achilles Rose. I do not believe in the immediate "ballasting" the intestines with coarse food, as advocated by some authorities, but agree with Dr. Einhorn that the diet should depend on the condition found in the stomach. The patient should be well fed, however.

I invariably apply abdominal support in cases of "mucous colic," and have always found relief therefrom. This is further suggestive of the gastroptosis and enteroptosis. Rest treatment is of value in some cases, with hydrotherapy. The bowels should be regulated and nerve tonics administered—change of climate is, at times, beneficial.

As to the general treatment of gastroptosis, we may sum up as follows: (1) Correction of the derangement of the stomach by appropriate diet and medication suited to each case. A careful analysis of the stomach contents should be made, and the motor functions noted; (2) regulation of the bowels; (3) mechanical support, to increase the intra-abdominal tension, such as (a) silk abdominal supporters, those manufactured by Stohlmann & Pfarre, I believe to be excellent; (b) bandaging, such as by the Van Valzah-Hayes method; (c) Gallant's corset; (d) Rose's adhesive plaster belt.

Regarding the abdominal belt of my friend, Dr. Achilles Rose, I may state that I have seen some brilliant results from its use. For example, I have noted a complete disappearance of hyperchlorhydria (hyperacidity) and a return to normal conditions, as a result of the mere mechanical support alone. It affords a support¹ to the organs and allows a return to their normal functions, and there will frequently be increase in weight under this method. I think one can never claim to replace

¹ To further substantiate this view, I have under observation a patient with typical attacks of mucous colic, which began only two months ago. These commenced a month after confinement. She has enteroptosis and gastroptosis, due to insufficient support of the abdomen after the birth of her child. The attacks began a month after she was confined. She is not neurasthenic and is only nervous at the time of her attack. This is certainly significant.

¹ Recently at my clinic at Wards Island, Dr. Graham-Rogers transilluminated a stomach before and after the application of Rose's belt, and found the stomach in this case to be elevated four inches, with the belt applied.

the ptosis, but the general tone is improved and correspondingly the symptoms. The advantage of the Rose's belt is that it cannot slip and become displaced. If a patient objects to any of

the most satisfactory material yet in use. It is looser in texture than the other plasters and the sweat readily evaporates through it. It can be worn longer and with practically no irritation. It

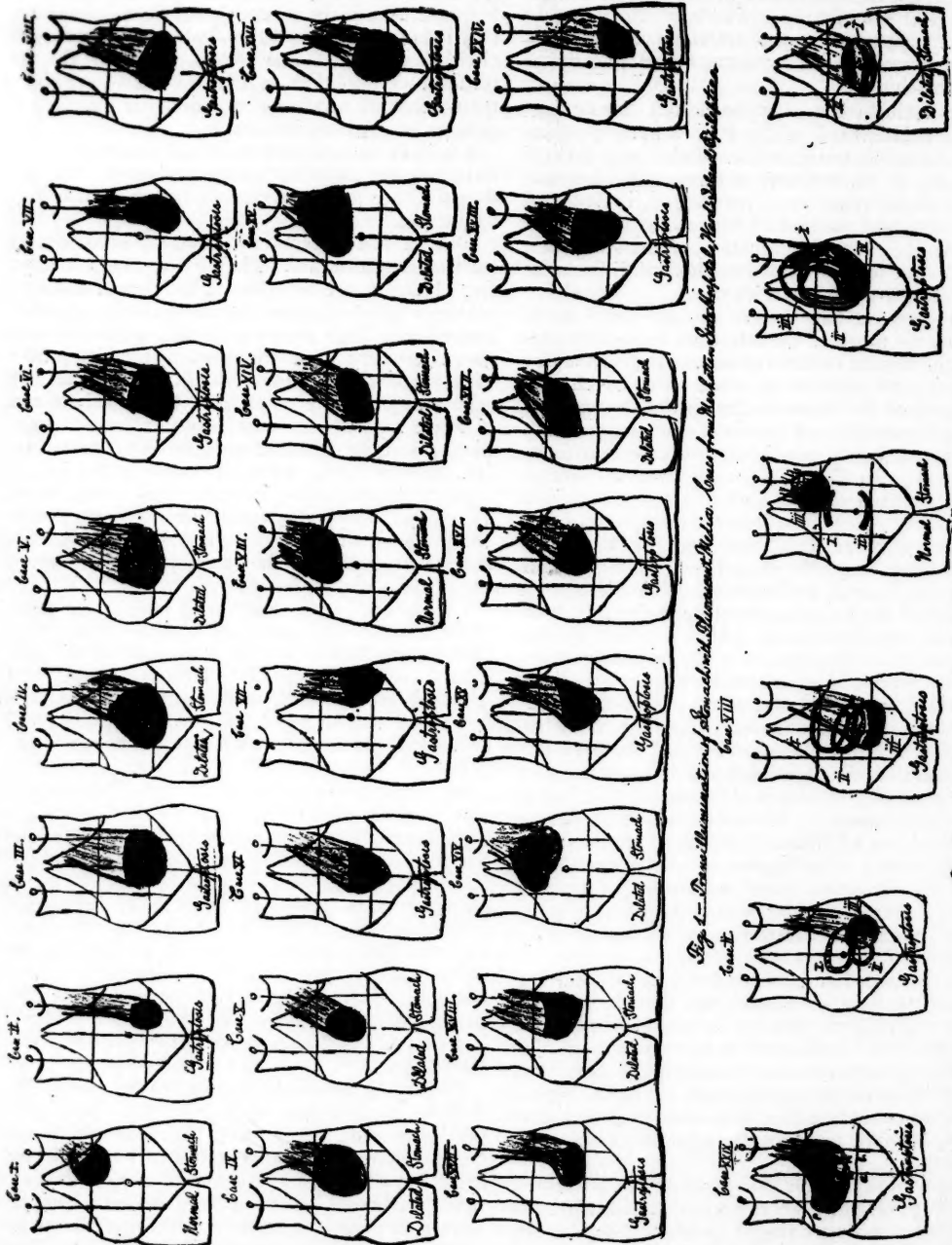


Fig. 2.—Progressive measurement of Stomach with Rose's Belt. Cases from the London School of Medicine. Cases from the London School of Medicine. Cases from the London School of Medicine.

Fig. 3.—Comparative Methods of Fixating the Bottom of the Stomach.

its features, it can be readily explained that it is placed there as a splint is applied and objections are thus readily overcome. I have employed recently for this belt, rubber plaster on moleskin, manufactured by Johnson & Johnson, and find it

is superior to the ordinary rubber adhesive and even to the zinc oxide plaster.

I wish to state right here, that the question of abdominal support and the various methods to secure it, I have investigated with a perfectly open

and unprejudiced mind and I do not hesitate to say that I now employ the technic described by Dr. Rose, believing it to best fulfil the indications. On the other hand, some of my medical confrères totally discard abdominal support and rely on massage and on exercise to restore the tone of the parts. In some cases of gastroptosis, we may endeavor to secure our results by "putting on fat," by means of the rest cure and selected feeding. In this event, I cannot recommend too highly the treatment of my friend Dr. John Russell of the Post-Graduate Medical School, such as he follows in cases of tuberculosis, and which is doubtless familiar to you all. I believe that this has a great future in the treatment of certain cases of gastroptosis.

Having concluded my observation on dilatation of the stomach and on gastroptosis, I will present some drawings of forty cases from the Manhattan State Hospitals, Ward's Island. Space only allows me to show some of these illustrations.

These demonstrate the position of the stomach in epileptics recently examined. The anatomical regions were marked out in blue pencil on the abdomen of each case and during transillumination of the stomach, the outlines were drawn in

not as favorable for percussion as when in the standing position. As a demonstration of the fact, I have administered a pint of fluorescin solution with the patient lying on the back, inserted the light and endeavored to transilluminate the stomach, with no satisfactory result. As the shoulders are gradually elevated, the outline of the stomach becomes more visible until, finally, excellent results are secured in the sitting and especially in the standing position. In muscular subjects, however, the objection can be made that the walls of the abdomen are more tense when the patient is upright and hence percussion is more difficult.

When employing percussion, therefore, it is my custom to examine the patient in the dorsal, semi-oblique and standing posture, if possible, and to form an opinion from the combination of the three methods.

At this point, I wish to speak of the changes that occur in the position of the stomach due to the administration of food or water. In our works on anatomy and diseases of the stomach the statement is made, that the empty stomach lies for the most part beneath the ribs on the left side, extending a short distance below their border; when partially filled it descends midway between the



Fig. 2. Dr. Kemp's Stomach Whistle.

colored pencil. These markings were redrawn directly from each subject on paper stamped with a special instrument, giving the anatomical regions. The results secured were as follows: Females, total number, 34 cases; gastroptosis, 16; dilated stomachs, 16; stomach in normal position, 2. Males, total number, 6 cases; dilatation of the stomach, 5; stomach in normal position, 1.

The motor functions of the stomach and the analysis of the gastric contents were made with all these patients. These factors were considered in making the diagnosis. There was abnormal secretion in the stomachs occupying the normal position. These data are certainly suggestive.

Comparative Methods of Locating the Position of the Stomach.—I shall first briefly refer to the position of the patient. In the dorsal position the abdomen is most relaxed; flexing the knees and thighs increases this relaxation. The percussion note is rendered more distinct by opening the mouth and percussion of the stomach should preferably be made from above downward. The liver, spleen, intestines and kidneys should also be carefully examined. On the other hand, the stomach with the patient in the dorsal position falls somewhat away from the abdominal wall and in this regard is not as easy to map out. The position of its contents, for example, when water is administered for the purpose of locating the stomach, is

ensiform process and the umbilicus, and when full, to within a few finger-breadths of the umbilicus. Now, this is true when the patient is in the dorsal position, since the suspensory ligaments of the stomach are then relaxed, and as the organ fills up it gradually gravitates downward. In the standing position, however, the stomach, even when empty, descends to the full length of its suspensory ligaments at once, and its lower border is practically at a constant level, or within about an inch of the same, whether the organ be full or empty. I am aware that this statement will excite immediate dissent from many of you, but it is capable of easy proof. For this purpose, I devised a simple instrument known as the "stomach whistle" (Fig. 2).

This consists of a rectal tube of small caliber, with a whistle in the end. To the other extremity is attached an ordinary stomach aspirating bulb without valves. The tube is inserted, the finger, placed over the open end of the bulb and a single bulb full of air is forced into and aspirated out of the stomach, by rapid and short intermittent contractions. This entirely eliminates the possible chance of distending the stomach with air and the organ remains practically empty. A stethoscope is placed over the abdomen and the point of greatest intensity of sound is marked by a cross with a colored pencil. The tube is pushed in and

out and the various points of sound are marked, the lowest is the lower border of the stomach. The ear, of course, can be applied in place of the stethoscope. Transillumination of the organ was then performed and the lower margins absolutely corresponded. This is also a further evidence of the accuracy of transillumination, as well as of the value of the stomach whistle. Space will not permit in this article to exhibit all the drawings shown at the meeting, but Case XXIX. (Fig. 3) demonstrates the above statements. Five observers located the lower margin of the stomach by means of the stomach whistle at *a* and *b*, on the same transverse line. Transillumination demonstrated their accuracy.

I am perfectly cognizant of the method of administering water and then blowing air into the stomach through a tube—but the “bubbling sounds” only give the level of the fluid and not accurately the lower margin of the stomach. The whistle is therefore of value in this regard, though it will not necessarily differentiate between dilatation and gastroptosis.

Other Methods of Locating the Position of the Stomach.—Various methods were tried on each individual case, as a basis for comparison, and, as a check, transillumination of the stomach was employed as the final procedure in every case. The results were drawn at the time with colored pencil on every patient and then transferred to drawing paper. Fully twenty-five or thirty physicians have examined these cases at my clinics and the results are not those of a single biased observer.

1. *Inspection.*—An abdomen, concave above, convex below, a sulcus in the median line and bulging in the inguinal regions, is suggestive of gastroptosis. However, I recently observed a simple dilatation of the stomach with these conditions existing. Observation of the peristaltic movements is often of value. Some claim that by mere inspection of the abdomen that they can locate the position of the stomach. We tried this method many times and without success.

2. *Inflation with Carbonic Acid Gas.*—This may be obtained by the administration, separately, of the ingredients of a Seidlitz powder, or preferably, by giving sodium bicarbonate and tartaric acid in separate solutions. So often did we fail by this method that I do not present drawings of these experiments. The method is disagreeable for the patient and it is impossible to regulate the quantity of gas.

3. *The Administration of Small Quantities of Soda Bicarbonate and Tartaric Acid With the Patient in the Standing Position.*—In some cases one can approximately map out the lower border of the stomach, by listening to the “sizzling sounds” with the stethoscope. This may at times be serviceable.

4. *Inflation of the Stomach With Air.*—This method is advocated by many authorities. One can attach to the stomach tube a bulb which has been previously tested, by noting how much water each compression of the bulb will displace. By

this means we can fairly definitely measure the quantity of air employed, though there is some escape about the tube and often into the intestines. This method, however, may be a cause of great discomfort, often overdistends the stomach, so that we do not obtain its true dimensions and it may even be a source of some danger.

On many occasions what was apparently stomach-becoming to the eyes, protuberant on the abdominal wall, was proved by transillumination to be intestines forced out forward and laterally by the stomach. By inflation with air, a diagnosis of dilatation of the stomach was thus made which proved by transillumination to be gastroptosis; for example, Case II, in Fig. 3. I is position found by air inflation; II, by water inflation; III, by transillumination; also in Case VIII, in Fig. 3.

Let me say right here that I found inflation with water next in efficiency to gastrodiaaphany. Water inflation, however, will fail at times, as I shall shortly demonstrate. On the other hand, I have had some successes with air inflation in detecting dilatation of the stomach, whereas it has frequently failed in gastroptosis, the intestines being displaced and simulating the stomach, as in Case II, Fig. 3.

Some authorities claim that by dilatation with air and placing the patient in a good light, they can secure a shadow of the lesser curvature and differentiate between dilatation and gastroptosis. In subjects with much adipose tissue, or with thick abdominal muscles, I hardly see that it can be practical. So far I have not seen this method successfully applied.

5. *Simple Percussion.*—This method failed to locate the correct position of the stomach in a considerable percentage of cases. The examination was made both in the dorsal and standing position; with the stomach empty, and after the administration of a single glass of water. As a demonstration illustrating these features I can only submit here Case I, in Fig. 3. I and II show the upper and lower borders of the stomach both in the dorsal and standing position as apparently demonstrated by simple percussion, the diagnosis being “dilated stomach.” III shows the true position of the stomach as found by transillumination; stomach in the normal position.

6. *Auscultatory Percussion.*—This method frequently fails. (See III, Case XVII, Fig. 3.) The stomach was apparently a simple dilatation—when actually by transillumination it was proved to be a case of gastroptosis.

7. *Reichmann's Auscultatory Percussion Rod.*—This consists of a short ivory rod, with circular grooves and intervening projections, somewhat like the handle of a large ivory knitting needle. The rod is pushed firmly down over the stomach at a right angle to its surface (in a vertical line to the abdomen) and is gently stroked with the finger. The stethoscope is applied over the organ and the “pitch” carefully observed. When the rod passes beyond the limits of the stomach a change in “pitch” is observed. It is claimed that the boundaries of the organ can thus be mapped

out. Case XVII, Fig. 3, serves as an illustration, I, representing simple percussion, dorsal position, with the stomach empty and also after the administration of a pint of fluid; II, auscultatory percussion with Reichmann's rod, under the same conditions; III, simple auscultatory percussion. All these show dilatation of the stomach; IV, transillumination of the stomach shows gastrop-tosis, which is correct.

8. *Inflation of the Stomach with Water.*—This method seems a fairly good one, in fact I consider it, next to transillumination, the best technic to employ when we desire to map out the position of the stomach. It is much easier to differentiate between the dulness, which we thus secure, and tympanites, than it is between different degrees of tympanites. In all, a pint to a pint and a half of water should be given in divided doses. In case XIV, Fig. 3, I represents the lower margin of the stomach thus mapped out; II, the area of transillumination. They practically correspond. In some of our cases inflation with water failed to give us correct results, however.

9. *Inflation of the Intestines with Air.*—No accurate results can be obtained—and great discomfort to the patient results.

10. *Inflation of the Intestines with Water.*—This method is painful, I believe inaccurate, and before sufficient water is injected, it is ejected.

11. *The Ideal Method to Locate the Stomach Is by Transillumination.*—Originally devised by Dr. Max Einhorn.¹ Subsequent laparotomy on the living subject, experiments with the cadaver and the stomach whistle all demonstrate its accuracy. For your benefit, I show you this evening both the Einhorn and the Lockwood gastrodiaaphane and the battery with rheostat, made by Stohlmann & Pfarre. It is possible, however, to attach the instrument directly to the cells, though there is some danger of burning out the light. I employ six to eight dry cells, preferably the latter. The Lockwood light possesses the advantage of being very small, easy to manipulate and does not gag the patient. Dr. Lincoln, of Brooklyn, has an instrument somewhat similar. One can readily improvise a dark room by pinning a blanket over the window. The examination should be made on an empty stomach. As an improvement in technic I have of late employed fluorescent media for transillumination. You will find an abstract of this work in a recent issue of the *Post-Graduate* and in the *New York Medical Journal* and *Philadelphia Medical Journal, Consolidated*, February 13, 1904, entitled "Fluorescin in Transillumination of the Stomach." A subsequent description of the experiments will be given in the *MEDICAL NEWS*, in the near future.

There are three fluorescent media so far found to be of value: (1) Bisulphate of quinine grs. x. in a pint of water. The addition of m. v. of acid phosphoric dilute intensifies its action. The same amount of acid sulphuric dilute may be substi-

tuted. The reaction of the quinine solution is, in itself, acid and the fluorescence a very pale violet. Increased acidity intensifies its action and fluorescence disappears if the solution is rendered alkaline. (2) Esculin; this is derived from the *Æsculus hippocastanum* (horse-chestnut), indigenous to Europe. Fifteen grain doses have been used in malaria. One can employ small doses, gr. $\frac{1}{8}$ to gr. $\frac{1}{2}$ in a pint of alkaline solution, which gives a blue fluorescence. This preparation is difficult to secure. (3) Fluorescin, phthalic anhydride (5 parts), a naphthalin product and resorcin (7 parts) heated to 200° C. It is a reddish powder, faintly soluble in water with a neutral reaction and practically gives thus no fluorescence; soluble in alcohol and in alkaline media, giving a green fluorescence like liquid opal. It has been employed to detect ulcers of the cornea. It can be secured from Merck & Co., and is extremely cheap. No further literature was obtainable.¹ I therefore injected one to two grains of fluorescin into dogs and rabbits in alkaline and alcoholic solutions, with no resulting effects either physiological or local. Later, assisted by Mr. Ferry, the chemist of St. Bartholomew's Clinic, we further investigated its properties. He suggested to me the addition of glycerin to intensify the fluorescence and we found that the hydrochloric acid of the stomach must first be neutralized. The patient should first be given a glass of water (eight ounces) in which fifteen grains of bicarbonate of soda have been dissolved. A second glass of water (eight ounces) is then administered, in which are dissolved the same amount of sodium bicarbonate, one dram of glycerin and gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$ of fluorescin. One to two ounces of lime water may be substituted for the soda bicarbonate. Curiously enough, as we increase the fluorescin in strength, fluorescence diminishes and colorization begins. By means of fluorescent media, I have found it possible to transilluminate the stomachs of fat subjects, that was formerly unsatisfactory, to examine for tumors and the location of the stomach with greater accuracy, and I believe that I can fairly state that the brilliancy of the transillumination is increased over one-half.

Radio-Active Solutions.—The relations of radio-active solutions and the X-ray to fluorescence interested me greatly. Incidentally, I may say that, as a matter of scientific accuracy, I suggested the infusion of radio-active normal saline solution into animals and also its hypodermic use. We performed these experiments at the College of Physicians and Surgeons, assisted by Dr. C. T. Graham-Rogers and by Mr. J. T. Hoyt. I must say that I could see absolutely no results from the standpoint of physiological medicine and from our researches so far, I feel that radio-active solutions have no therapeutic value whatsoever. I believe that this is the first infusion of a radio-active solution that has ever been performed. There were no physiological results from the infusion, or any changes of heart action and respiration, beyond

¹ Laparotomy, by Dr. Robert H. M. Dawbarn, on a case of gastroptosis, transilluminated with fluorescin, at the Manhattan State Hospital, West, Wards Island, has recently demonstrated the absolute accuracy of the method.

² Since reading this paper, some interesting data have been published regarding the local effects of fluorescent media in diseased conditions.

those of the infusion of a normal saline solution. I show you tracings taken from this animal—the manometer being attached directly to the carotid artery and infusion given into the femoral vein. I now present for your inspection the living dog thus operated upon three days ago. You will note that the wounds are healing nicely and that the animal is in good condition. As to the value of radium, that is a different matter.

In conclusion let me say that if by these observations I shall have succeeded in exciting your interest, I shall feel that I am sufficiently repaid.

107 East Fifty-seventh Street.

EXPERIMENTS TO DETERMINE THE VALUE OF COLLARGOLUM AND ANTISTREPTOCOCCIC SERUM IN INFECTED WOUNDS OF THE EYE.¹

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AND

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SEVEN AND ONE-HALF per cent. of the blind are made so by injuries to the eye, usually resulting in panophthalmitis, and because of the ineffectiveness of modern methods of treatment, new and more efficient remedies are desired. Up to the present time iodoform has been most used, and with the greatest degree of success, but its method of application is difficult, and the results are not always satisfactory.

Last year the writers made some experiments to determine the value of formalin in the treatment of infected wounds of the eye, but the results did not show any special advantage in the use of this remedy, even though its innocuousness was clearly shown.

The present tendencies to combat diseases by intravascular medication has not been overlooked by the authors; and certain remedies which have been brought to the attention of the medical profession for use in combating various forms of diseases, supposed to be due to streptococcus infection, have been made the basis of experimentation, the results of which are herewith given.

Collargolum was one of the remedies used; it is an allotropic form of silver (colloidal silver) which is soluble in water in the proportion of one to twenty-five, forming a brownish solution. It does not appear to affect the constitution of the blood or lymph when injected intravenously. It is carried to all the organs, but is eliminated rather rapidly. It has some direct bactericidal action and produces a marked and rapid leucocytosis. Because it is quickly eliminated from the body, its administration must be frequently repeated. It has been used with considerable success in septicemia and pyemia, surgical infections, puerperal sepsis, sepsis of infectious diseases, skin diseases, venereal diseases, and certain muscle diseases, including rheumatism, abscesses, cellulitis, and so forth. It is injected intravenously in a one per cent. solution.

The perusal of medical literature at hand does not show that collargolum has been employed in the treatment of eye diseases by intravenous injection. It has, however, been used by inunction, employed in the form of Credé's ointment, in which form it appears to have been quite efficacious. In the collargolum experiments, the eyes of rabbits were infected by injecting two minims of a turbid emulsion of streptococci in sterilized water into the vitreous. On the following day there was pericorneal injection, iritis and exudate, into the vitreous. Treatment was now begun with a two per cent. solution of collargolum injected, in one series of animals, into the veins, and in another series, into the capsule of Tenon. Twenty-five minims of the solution were injected into the veins on successive days, but the inflammatory conditions increased, the iritis became more marked, chemosis of the conjunctiva developed, and a yellowish reflex was visible in the fundus. As the result, a condition of panophthalmitis developed and, in spite of the injection, the eyes were lost.

In another series, the injection of a two per cent. solution of collargolum was made directly into the capsule of Tenon. The injection varied in quantity from five to twenty-five minims. Chemosis was fairly pronounced after the injection, and in one animal the chemosis was so great that the pressure on the eyeball produced a pseudoglaucomatous condition, with ulceration of the cornea, which eventually caused the destruction of the eye. The discoloration of the subconjunctival tissue was sufficient to condemn this method of treatment in human subjects, whether or not the treatment had been successful. The treatment, however, was of no value, and the eyes were lost as promptly as those in the first set of experiments.

Another set of experiments was begun by infecting other rabbits with streptococcus emulsion in the vitreous. Collargolum in 100 minim doses of the two per cent. solution were injected intravenously; the results were not different from those mentioned above. Panophthalmitis developed, the eyes became soft and were eventually destroyed.

Serum.—After infecting a number of rabbits' eyes, according to the method described above, a domestic antistreptococcus serum was employed in another series of experiments. After an inflammatory process had begun this was injected in ten minim doses into the capsule of Tenon. The result was equally disappointing. The purulent process developed into a full-blown panophthalmitis and the eyes were lost.

Antistreptococcus serum was injected in other animals whose eyes had been previously infected. The quantity varied from five to ten c.c., and was injected intravenously. These eyes were destroyed in the usual way. One animal received an injection of serum into the capsule of Tenon, and while the injection was being made from the glass bulb which was supplied with a rubber ball to expel the serum, a small quantity of air was

¹ Received for publication March 15, 1904.

also injected. The rabbit was placed at one side, and while attention was directed to the treatment of the other animals, the rabbit died. The time was certainly less than five minutes. The autopsy showed a frothy clot in the right ventricle and air in the coronary arteries.

Still another series of experiments with the antistreptococcus serum injected both intravenously and into the capsule of Tenon, resulted in the same way. The eyes were all lost by panophthalmitis.

An examination of the eyes of the animals which were employed in the preceding experiments, a month later, revealed various interesting conditions: in some iris *bombé*, occlusion, softening and pannus; in others, posterior synechia, new formation of blood vessels in the iris, yellow reflex from the fundus, minus tension, and pannus.

To determine the value of these various forms of treatment in combating phlegmonous inflammation of the orbit and eyelids, some of the same emulsion which was used to infect the above-mentioned rabbits, was injected through the lids into the orbit. It was found impossible to produce any inflammatory reaction by the use of this method of infection, and hence, experiments to that end were abandoned.

For another series of experiments, we were kindly supplied by Parke, Davis & Co. with a liberal quantity of their antistreptococcus serum, and by Schering & Glatz, with a quantity of Aronson's antistreptococcus serum. Rabbits were infected as before by injecting streptococcus emulsion into the vitreous. These experiments were carried on in three ways: (1) by injecting the serum into the capsule of Tenon, (2) by injecting it into the capsule and into the subcutaneous tissue, and (3) by the hypodermatic method alone. The quantity injected into the capsule of Tenon was generally about 30 minims; with the combined method the injection into the capsule was 30 minims and into the subcutaneous tissue of the neck, 10 c.c.; in the subcutaneous method alone, 10 c.c., were injected each time. The experiments were failures in every instance, and as it was thought that the inflammatory process made too great headway in twenty-four hours, which was the usual time for commencing reaction after the initial infection, the injections were made from twelve to eighteen hours after the primary injection of streptococcus emulsion. Without exception, no difference could be noticed in the course of the disease, and the treatment seemed to be without any favorable action to inhibit the inflammatory process. Considerable hopes had been raised that Aronson's serum would prove effective in the treatment of these animals, as Aronson's serum is the one which has been most successful in the treatment of infectious diseases in animals.

A review of the ophthalmological literature reveals only one instance where serum was employed in the treatment of eye diseases. Attanasio (*Archivio di Ottalmol.*, vol. ix., Jan., 1902,

p. 241) employed Marmorek's serum in the treatment of eye diseases and he found the serum treatment quite effective. The serum relieves the pains after a few hours. If the injection is made at the commencement of the purulent infection and in sufficient quantity, it neutralizes the toxins taken into the circulation, it diminishes the virulence of the streptococci and other microbes (which produce suppuration) by increasing the defensive powers of the tissue. He recommends it as a preventive of postoperative infections, but in such cases it ought to precede the operation.

Remarks.—The intravenous injection of certain remedies, such as bichloride of mercury, formalin, protargol and other antiseptics, has shown that many of them act favorably. Certain ones, however, depress the system to such an extent (whether by affecting the elements of the blood or by other poisonous action, is immaterial in this paper), that, in experimental cases the animals which receive maximum non-toxic doses die more rapidly than animals not so treated.

While the writers are well aware that experiments on animals are not conclusive, they certainly afford an indication, at least, of the action of various medications on the human system. In view of the fact that collargolum has been used with great success in the treatment of various septic processes in human beings, conclusions drawn from these experiments should not stand in the way of the treatment of similar ocular infections in human beings by collargolum.

It is known that treatment directed against encysted collections of pus, are not so favorably acted upon by these methods as general infections are. In the eye, the processes are limited by the coats of the eyeball, and it is not impossible that the conditions are comparable to a pus collection elsewhere. We know that exudative processes in the eye are but slowly influenced by any form of treatment, local or general. So far as these experiments go, there is nothing to indicate that collargolum or serum should not be employed in the treatment of certain ocular diseases in human subjects.

Local treatment by subconjunctival injections of collargolum solution are certainly not to be recommended. Whether these remedies act by leucocytosis, by antiseptic action (as in the case of collargolum), or by some inhibitive process (as in the use of serum), is as yet unknown. There seems to be no good reason why serum treatment should not be tried in all forms of purulent eye diseases. It has been found successful in the treatment not only of pure streptococcus infection, but also of such infections mixed with staphylococci.

Of course, not all infectious processes in the eye are caused by the streptococcus. The staphylococcus and the pneumococcus have both been found in purulent diseases of the eye, but in view of the generally accepted idea that streptococcus infections are generally fatal, the use of antistreptococcus serum, being harmless, may be of benefit, even though selective in its action.

Some writers claim that all streptococci are alike, while others claim that there are various forms of these bacteria, and seem to prove their assertion by *agglutination* methods.

It is found that the preparation of efficient sera requires certain methods, it being necessary in general that the sera be prepared from virulent cultures. Some hold that the cultures should be passed through intermediate animals, while others claim that, by so doing, the specific and selective agglutination action of the serum thus prepared is not obtained, and prefer serum directly prepared. An interesting fact is that the blood of diabetics seems to impair the action of certain sera.

The reasons for failure of the action of anti-streptococcus serum may be ascribed to the variability of the streptococcus; to the fact that few septic processes are simply streptococcus infection alone, but are more often mixed; to the improper preparation of the serum from cultures indirectly, cultures not taken from cases of a similar kind for which the remedy is applied; or finally to the application of serum in insufficient quantity or after the process has become so far advanced that any treatment would be ineffectual. It may not be impossible that the serum deteriorates rapidly after its preparation. In certain experiments on animals it has been shown that the doses of serum must be enormously increased the longer the treatment is begun after the primary infection. In view of the fact that any treatment of infectious processes in the eye is so unsuccessful, the writers recommend the employment of serum in the treatment of such cases.

A word of warning should be given in regard to the use of serum containers now generally placed on the market. The unfortunate result of death by air embolism after subconjunctival injection of serum from one of these containers supplied with a rubber bulb, makes it necessary to recommend the exercise of considerable care. The more recent serum receptacles, prepared or manufactured in the form of a glass syringe, seem to avoid any possibility of death from air embolism.

Conclusions.—(1) Collargolum is ineffectual in preventing the spread of purulent processes in the eyes of rabbits, whether used intravenously or by injection into Tenon's capsule. (2) Anti-streptococcus serum does not appear to exercise any favorable influence on purulent processes in rabbits' eyes.

Punton Sanitarium.—Dr. John Punton, Superintendent of the Punton Sanitarium or Home for Nervous Invalids, at Kansas City, Mo., is adding a large addition to the sanitarium building in response to an increased demand for accommodations by patients. There is also being built a large extension to the verandas, which will be used by the guests for places of recreation. The management of the sanitarium highly appreciates the support received from the medical profession, and has great confidence in the continued success of the institution.

PUERPERAL SEPSIS.¹

BY SWITHIN CHANDLER, M.D.,
OF PHILADELPHIA.

THIS subject has been the theme upon which the poet and the scholar have vied with each other in giving warnings and admonitions, not always wise, but nevertheless, sincere. To rehash the history and words of authors would be only to tax one's patience, and add nothing new. Therefore, we will not speak of the cause, symptoms, and ancient history of this puerperal sepsis, but try to present to you views which it is believed will be new in regard to the surgical treatment, and the value of the study of the respirations in this trouble.

In my judgment it is a subject that is open to new suggestions, because it is acknowledged that the present treatment of puerperal sepsis is not all that could be desired. John Clark, speaking at the County Medical Society in Philadelphia, made the statement that hysterectomy had failed to fulfil this mission, and as this is the last operation brought forward, it certainly leaves us in the same position in which we were before its introduction.

Knowing this to be the case, we were stimulated to endeavor to aid in the solution of this problem, which in so many cases not only causes the physician to lose his case and family, but so often injures his reputation. The operation which we suggest is new to me, and if it has been done before we performed it, it is unknown to me.

Pryor, of New York, read a paper in Philadelphia, we understand, upon this subject, but I did not hear the paper, and only a part of the debate, so I know not his position in the matter. What we have been doing for the last six years in addition to the general treatment, etc., so well known, is the following: Make an incision posterior to the cervix in the posterior vaginal wall; then pass a pair of long blunt-pointed forceps, slightly curved, in the cervical canal, up into the cavity of the uterus; puncture the posterior wall in the center near the top of the uterus. Then introduce with two fingers a piece or strip of iodoform gauze through the posterior vaginal opening previously made, clasp the gauze with the forceps and drag it through the uterine wall and out through the vagina. Repeat this by puncturing the uterus on each side, but posteriorly and just about the middle of the body, drawing the gauze through in the same manner as in the first attempt.

Thus, one will see, we treat the uterus as a thoroughly infected organ deserving heroic treatment. We feel that we have been and are justified in this procedure, and will report four cases from a list of twenty so treated, and made deductions from these, being well aware that before this is proven to be the best treatment, many cases must bear testimony:

Case I.—Patient, thirty-two years old, mother of two children. Supposed to be in perfect health

¹ Read before the Northwest Medical Society of Philadelphia, March 1, 1904.

previous to confinement. Child born on March 2, 1898. On March 4, forty hours after labor, patient had a chill, temperature rose to 104° F., pulse 130, respiration 38. March 5, temperature 105° F., pulse 140, respiration 40. Face pinched, anxious and flushed. Lochia scanty and somewhat offensive, general perspiration over entire body.

Same evening cleaned bowels with stimulating enema. Gave tincture digitalis, 10 m., hypodermically, and proceeded to etherize case. After most careful preparation, curetted, removing piece of placenta, uterine lavage with ten quarts of plain sterile water, and one quart of normal salt solution, opened posterior vaginal wall, investigating with finger, tubes, ovaries, etc. Then passed forceps through uterus and withdrew gauze, as before mentioned, leaving same in to drain, thus forming a U of gauze, entering the vaginal opening and leaving through cervical canal and out of vagina. Quinine sulphate 20 grains, given every three hours, as after-treatment.

March 6, patient generally improved. Temperature 103° F., pulse 120, respiration 34. March 7, still improving; temperature 101.2° F., pulse 108, respiration 30. Continued to improve and made good recovery. Drains removed on sixth day after the operation and replaced by uterine and postcervical gauze drainage only. All drainage removed on thirteenth day.

Case II.—Patient twenty-six years old, first child. Normal until birth of child, as by examinations. Labor on July 10, 1900. Was greatly torn in cervix and posterior vaginal wall into uterus. Repaired immediately. Same evening, temperature 104° F., pulse 140, respiration 40. Continued to rise until fifth day, then temperature 104.2° F., pulse 124, respiration 36. Operated upon same procedure, also cutting stitches previously inserted. Sixth day, temperature 103.2° F., pulse 120, respiration 30. Seventh day, temperature 101° F., pulse 118, respiration 30. Continued to fall until twelfth day; all normal, dressings removed and others substituted as before. Recovered.

Case III.—Patient, forty years of age. Mother of six children. Labor began August 15. Was in labor for twenty hours, when version was performed. Cervix and posterior vaginal wall torn. Repaired immediately. Temperature at the end of six hours, 104.2° F., pulse 128, respiration 40. Third day, temperature 106° F., pulse 154, respiration 44. Operated. In addition to operation aforesaid, because of infiltration and swelling of the tubes, ovaries and broad ligament these were punctured and relieved of a yellowish discharge containing many streptococci. Following day, temperature 104° F., pulse 140, respiration 40. Third day, temperature 103° F., pulse 140, respiration 36. Fourth day, temperature 103° F., pulse 120, respiration 32. Fifth day, temperature 102° F., pulse 120, respiration 30. Gradually, with fluctuations, temperature, pulse and respiration returned to normal, and patient made a slow recovery.

Case IV.—Patient, thirty-nine years of age. Married, mother of eleven. Possibly had a right pus tube for many years; time unknown. Craniotomy performed on child Nov. 6, 1902, and child delivered. Mother was horribly lacerated, and as there was so much shock, the physician did not repair the injuries. Posterior fourchette and sphincterani torn through, cervix torn almost up to uterine artery. Great shock followed.

On seventh day after labor, temperature 105° F., pulse 135, respiration 34. Operation and same treatment as described above. Patient was afflicted with a venous thrombus on left side, and was confined to bed for ten weeks, but finally recovered.

One subsequent case upon which we operated died two hours after, but I think the operation was attempted too late. It was on the ninth day, and the woman was in a condition of collapse.

Some Objections.—(1) We will see at a glance that there are certain cases where the mildness of the infection makes this operation unwise. This is admitted, and such operation is not advised. (2) Some will believe it makes another wound, and is therefore another source of infection. (3) Cases like Case I might have recovered upon removal of the placenta. (4) Result in labor.

The first objection is admitted. As to the second, the uterus is generally already infected, and where it is not, experiences up to date do not prove the objection, but rather the contrary, as in Case I. As to the third, cases may and do recover after removing retained membranes, but such cases as a rule are mild infections at the start, but afterward if not removed a genuine infection takes place, and the operation is demanded. Regarding the fourth, results in after-pregnancy and labor are only theoretical.

Briefly for the operation one can say: (1) It is conservative; (2) it is easily performed; (3) it is logical, as it gives drainage to an infected organ and parts; (4) it recognizes a true condition and treats it accordingly; (5) so far it has met with the best results of any method, in my hands.

Because this paper is longer than expected, we will only briefly point out one fact noticed in these cases, and that is the great danger signal in puerperal sepsis is the rapid respiration. Many cases of high temperature and pulse almost beyond belief have recovered, but when respiration runs from 45 to 50 the gravest condition is manifested. In order to demonstrate this, we present a chart for inspection, and you will quickly perceive the rapid respiration, and that it is not in rhythm with the temperature and pulse.

Just when the patient seemed to improve generally (with the exception of a bronchitis which supervened) and in the words of Dr. Cadwalader, the case evidently was recovering nicely, the respiration became rapid. Although the temperature was almost normal, the pulse had returned to a safe condition, the respiration was the only sign that forewarned death. I wish to thank Dr. Edith Cadwalader for the courtesy of the loan of the chart.

VACCINATION AND THE LAW.¹

BY NELSON G. RICHMOND, M.D.,

OF FREDONIA, N. Y.

At a meeting of a liberal club, the subject of the evening was quarantine. The paper was able and appeared complete. But in the discussion which followed it was evident that from design or otherwise vaccination had not been mentioned. Consequently it became the conscientious duty of a lawyer (who, by the way, was an intimate friend of the reader of the paper), to begin a tirade on vaccination, holding it up to ridicule and vividly picturing the horrible results which follow its practice. The audience was an intelligent one, and it was evident that the antivaccinationist had a popular following.

It happened that at this time the City Board of Health had been enforcing the vaccination law in its relation to the public schools. The willing ones had been vaccinated and the unwilling ones were objecting and opposing the enforcement of the law, with the usual embarrassment to the Board of Health. The State Board said the law must be enforced, and the local board did its very best, with the customary result of exciting animosity and vituperation, and in the end having its provisions evaded by many.

At a meeting of a medical society of two adjoining cities, composed of the physicians in active practice of both schools, a resolution was introduced that inasmuch as scarlet fever was known to be present in one of the towns, the society petition the Board of Health to suspend the enforcement of vaccination, until such time as the city was found to be free from contagious disease. The discussion was very spirited and there was by no means a unanimity of opinion; and while the resolution was lost, it was evident that there were some present who were either lukewarm on the subject or were disbelievers in the efficacy of vaccination.

Smallpox was found in a neighboring city of an adjoining State and the Board of Education began an intelligent effort to enforce the law in its relation to children attending the public schools. The lives of the superintendent of those schools and the Board of Education were not enviable ones from that time on. The opposition organized and gathered within the folds of their banner a very respectable, determined force. Legal counsel was employed and plans were laid to bring action against the superintendent in every case where it could be proven that children had been in attendance upon school without a vaccination certificate. They reasoned that long before the final case had been reached the board, sick and tired of the contest, would drop the matter, and then their children would be admitted without vaccination.

In order to meet this strategy the superintendent, acting under the advice of the board, engaged two of the ablest lawyers obtainable to defend the case.

In the test case the superintendent of schools

was brought before a justice of the peace and was convicted of admitting to school a pupil without a certificate of successful vaccination. Defeat was admitted, a necessity by the defense, before the trial was begun. Their only hope was to find flaws in the record for the docket, which when once made and sworn to could not be altered. By diligent search they did find two flaws, so that by bringing these into prominence and by using a peculiar form of review trial, they prevented the case being reopened and won the suit. The prosecutors were really fighting a battle contrary to their convictions, to intimidate the Board of Education, which was the real target, from enforcing the law.

The next move of the defense was to delay proceedings until a bill had been introduced and passed by the State legislature to stop all prosecutions that should be begun sixty days after the violation of the act. So strong a weapon did the prosecution wield that this act of the legislature was made necessary to stop further prosecutions.

I will not attempt to defend a law which permits the finding of insignificant flaws to reverse a verdict. I would rather question the wisdom of a law which courted violation.

The Board of Education in a neighboring city recently decided to enforce the vaccination law. Protests began to be made and protestants published their objections in the daily press. Public meetings were held and agitators from neighboring cities came to strengthen the opposition. One-half of the children remained away from school as well as some of the teachers. The Board of Education finally rescinded the order.

These illustrations are given as typical ones of the inconvenience, annoyance and boycott boards of health and boards of education have to endure when they make any reasonable attempt to enforce the law in regard to vaccination in the public schools.

If there is one thing in medicine which has seemed settled, it is that vaccination, skillfully performed, and repeated if necessary, protects from smallpox. And it has been with some surprise and not a little pain that I have witnessed an apparently growing hostility to an act which has saved so many lives. And the question arises, is there not one principle in medicine which is settled for all time? Is it not true that instead of a growing conviction of the truth of the discovery of Jenner there is an increasing number of the laity who disbelieve it; and that these innocents are usually headed by some one who has the degree of M.D. attached to his name?

The Public Health Law says: "No child or person not vaccinated shall be admitted into any of the public schools of the State, and the trustees or other officers having the charge, management or control of such schools shall cause this provision to be enforced."

The Compulsory Education Law, as amended at the last session of the legislature, says: "Every child between eight and sixteen years of age, in

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proper physical condition to attend school, shall regularly attend upon instruction at a school in which at least six common school branches, etc., are taught."

The Department of Public Instruction Rules: "That a child who is not vaccinated is not physically able to attend school."

One law says they must attend school. The other law says they cannot be admitted without vaccination. Some parents say their children shall not be vaccinated, and so boards of education are in a dilemma, whenever they begin the crusade. It has been held by the courts that a child shall not be vaccinated without the consent of parents, and if parents refuse their consent the board may refuse to admit such a child to school. Still the department believes "that a wise and judicious" management of this matter would result in admitting children to the public schools, even though the law as to vaccination had not been complied with, or vaccination had not been successful, only excluding them when the prevalence of an epidemic of smallpox or some other conditions might render this necessary. The department says, however, that this is only an opinion which has no force as an interpretation of the law, and if the Board of Education feel that the provisions of the vaccination law should be rigidly and literally enforced, they must hold that children whose parents refuse to allow them to submit to vaccination are not "in proper physical condition to attend school."

A great deal of trouble arises in interpreting the law in cases where vaccination has not succeeded. Some claim that they have complied with the law when they have been vaccinated, whether it works or not. Others claim that when the vaccination has been repeated and is still unsuccessful, the law has been complied with. A recent decision of the attorney-general of the State of New York says that physical compliance with the act of vaccination fulfils the law whether the vaccination is successful or not. Others, mainly health boards, interpret the law requiring vaccination to mean successful vaccination.

It is customary to class those, in whom the introduction of the vaccine virus is not followed by the different typical stages, as immune. But the conviction has been growing that the immunes are constantly diminishing in number. If vaccination is of sufficient importance to justify the expense and inconvenience, the bark of immunity is a frail one in which to be sailing. How frequently do we find cases resist the second and third attempt at vaccination, only to yield on the fourth or fifth! Yet a health board finds great difficulty in enforcing the act in those cases which choose to protect themselves with this shield.

The amendment in England, known as the Conscience Clause, had always appeared a step backward,—a movement, usually experienced in any great reform. It became a law in 1896. A growing suspicion that these convictions were not well founded led me recently to address an inquiry to Dr. John Thomson, attending physician at the

Royal Hospital for Sick Children, Edinburgh, Scotland, and a man of unquestioned fairness and ability. This brought the following reply, which I cannot do better than give in the doctor's own words: "The Conscience Clause was inserted in the Vaccination Act, with the approval of such whole-hearted advocates of universal vaccination as Paget and Lister, with the view of lessening the opposition to the measure. They believed that rigorous compulsion would only provoke opposition; that many of those who were against the measure strongly, on the ground of its being an interference with the liberty of the subject, would not oppose it at all if there were a Conscience Clause. It is, I believe, the opinion of the profession that they were right in this, and that the insertion of the Conscience Clause has proved a distinct success. It has removed many of the stronger men from the ranks of those who oppose the measure, so that the field has been largely left to the cranks. The amount of vaccination in England has, I understand, increased materially. In Scotland, fortunately, we have little trouble in such matters. This has always been a well-vaccinated country and antivaccination has never thriven north of the Tweed."

In the face of the beneficent results from vaccination, which I do not need to substantiate, why is it that the opposition in this country is so great? And how can this opposition be met? A business man cannot be on a board of education or a physician act as health officer, when the vaccination laws are enforced, without serious damage to his business. Sometimes the penalty of a conscientious performance of duty involves a sacrifice greater than he or his family can consistently undergo. The answer to the question is apparently easy. The remedy is more difficult.

It is generally admitted that the opposition to vaccination arises from the enforcement of the compulsory law. There is no doubt the law has effected more widespread vaccination than individual option would produce. There is no doubt that in monarchical forms of government, where wages and population do not permit the food, air space and ventilation, which we in this broad country enjoy, compulsory vaccination is essential. But in this "land of the free and home of the brave" people chafe under the restrictions of prohibition and become obstinate under the enforcement of compulsory vaccination. There is no doubt that many oppose vaccination not so much from the fact that they disbelieve in it as that they are compelled by law to undergo it.

Since the introduction of antidiaphtheritic serum the case of diphtheria where it is not used is an exception. Notwithstanding the expense, the authorities have made it possible for the very poorest to have the benefit of it. The opposition in the profession has dwindled into insignificance and the knowledge of its value has become so general that a physician's popularity would hardly withstand the effects of losing one or more cases of diphtheria, where it was not used.

Would the introduction of antidiaphtheritic

serum have been so rapid and universal, had there been a compulsory law regarding its use?

At the last annual meeting, at Albany, this society had the pleasure of listening to a scholarly paper on "Some Scientific and Practical Aspects of Vaccination," by Dr. P. H. Bryce, secretary of the Provincial Board of Health of Ontario, Toronto, Canada. Dr. Bryce said that opposition to vaccination is due to the fact that the laws are compulsory. He also argued that since the State, for good and sufficient reasons, accepts the responsibility of compelling people in perfect health to be inoculated with a disease, it was the duty of the State to provide qualified public vaccinators who should be empowered to vaccinate systematically: register all infants born; that naturally these men would become experts; would use only the best proven and pure vaccine; and would secure a fund of information which would be valuable. These suggestions are worthy of serious consideration.

The remedy of amending the compulsory vaccination act in the public schools, at the present time, is probably too radical to meet with popular approval in the profession, from whom such a suggestion should come. But I believe it is not too early to agitate and give serious consideration to the question—and it is quite possible that in the full fruitage of time an amendment to the vaccination act may originate in and be promulgated by the army of its friends, rather than by its enemies, who depict in florid colors the horrors of vaccination.

There is another remedy, however, which this paper might suggest, and that remedy is popular education of the laity. Notwithstanding that the centennial of the discovery of vaccination has been passed, and in spite of its acceptance by the civilized world as a preventive of great value, there is very little known of the proof of actual benefits arising from it or of epidemics stamped out by resorting to it.

At the Chautauqua Summer School for 1903 Dr. William S. Bainbridge, of New York, gave a series of lectures before the large audiences there assembled on medical topics with these subdivisions: "The Discoveries of the Middle Ages;" "Progress in Every Age;" "What Has Been Accomplished in Fighting Smallpox."

It occurred to me in reading the admirable presentation of this part of the subject that there were likely to have been many so-called antivaccinationists in the audience who needed their attention called to such recent proof as has been given in the province of Santiago, Island of Cuba, and in the Philippines. This paper suggested that not only were these people far behind the times, in opposing vaccination, but that they might become a menace to society.

The opportunities of presenting medical topics before popular audiences are frequent, and I would suggest that there be a very general presentation of the subject of vaccination. Admitting that there is usually embarrassing opposition to every attempt to enforce the vaccination law,

I would suggest that it be enforced with a wise, judicious and, when necessary, firm hand; that duty may be performed, but that opposition may not be needlessly excited; that the question of amending the law, in the course of time, be given earnest thought; that each physician improve every opportunity, giving argument and citing proof that vaccination does protect; and that each individual should willingly submit to it, whenever the presence of an epidemic makes it expedient, or his physician thinks wise, regarding it as a duty he owes the community.

DIPSOMANIA AND ITS TREATMENT.¹

BY WILLIAM LEE HOWARD, M.D.,
OF BALTIMORE, MD.

DIPSOMANIA I consider a symptom of functional neurosis, the periodic psychic explosions being caused by accumulation of autotoxic material, this being primarily due to an unstable nervous organization allowing faulty metabolism. In individuals born with a neurotic temperament it does not take long for faulty metabolism to enter as a factor in causing inhibitory insanity. Under the conditions of living and the high mental pressure which is the lot of most of those subject to dipsomania, suboxidation is almost constant. Products of suboxidation, alexins, cause auto-intoxication, and in a certain class of neurotics this is demonstrated by an uncontrollable desire for narcotics—alcoholic drinks being those most easily obtained.

It is the existence of this condition—the accessibility of alcoholic drinks—which has thrown a veil of misconception over the morbid impulses of those suffering from periodic psychic restlessness and physical discomfort. It is not the love or passion for alcohol that causes the dipsomaniac to consume such enormous quantities of this narcotic, but because it is the one drug easily and always obtainable; and found amid genial and willing companions. No other narcotic gives the bodily comfort or produces the psychic anesthesia as alcohol in its many potable mixtures, and for this reason it is resorted to with vehemence and avidity when once the paresis of inhibition enters upon its course of a few weeks' duration. This condition I call inhibitory insanity, and its aura is well expressed by Schiller, who suffered from this functional disturbance, when he wrote of himself, "My mind is drawn different ways; I fall headlong out of my ideal world."

As I have elsewhere stated², the dipsomaniac is found among the intellectual classes: the physician, lawyer, literary man, artist and musician. One must be able to draw an incised line between dipsomania as a symptom of cortical disturbance, and inebriety, or chronic drunkenness, in order to successfully treat these cases. That this distinction or rather the recognition of dipsomania as a symptom of disease, is not acknowledged by many medical ruminants, is well recognized, but also is

¹ Received for publication April 30, 1904.

² "The Pervers," G. W. Dillingham Company, New York.

Hamlet's remark, that "Virtue cannot so inoculate their old stock that they shall relish it."

Clinically the distinction is readily made. The individual who demonstrates the objective symptoms of dipsomania will be found to be a man of culture and quiet habits. He will go months, and sometimes a year, living an honorable and upright life. He will probably hold responsible positions, and never be seen by his social or business friends in barrooms or lupanar dens. He is most likely to be an individual who has accomplished some great literary work, or perhaps just successfully ended a financial *coup*. At the oncoming of an attack he appears restless, does not sleep, begins to neglect his daily routine, and finally disappears from his customary place of work. He is well aware of the symptoms as they arise, and if he is a methodical man, he will so arrange his papers and affairs as to allow of their neglect for two or three weeks.¹ He knows from experience the power of the nerve storm which is soon to break, and he hurriedly and silently goes to a distant town, or if the storm breaks in all its impulsive fury before he gets away, he hies to a remote quarter of his town, where he remains to the delight of the bums and drunkards—whom he is certain to find—and who live off this individual whose energies are bent to consume all the possible quantity of liquor obtainable. With no direct recognition of self, this ambulant entity exists in an impulsive individual zone until the cortical neurones come again into their own. The recovery takes place immediately, almost spontaneously, and then there is great physical relief and psychic equilibrium: a totally different condition from that seen in the drunkard, who demonstrates all the signs of alcoholism after a few weeks of steady, constant drinking, the drunkard will have delirium tremens, the dipsomaniac mental freedom and physical comfort. During an attack the dipsomaniac, even when he has consumed liquor enough to make two men maudlin, has no difficulty in pronouncing large words or speaking long sentences; there is no evidence of dysarthria as seen in paresis or drunkenness. In this fact we can recognize that there is an overstimulation of energy in certain portions of the cortex, while other symptoms demonstrate plainly that there is partial paresis of inhibitory centers.

The unfortunate victims of this disease are generally those who work at a high and continuous mental and nervous pressure. Mental concentration for weeks or months, the whole nervous organization under forced tension, can only result in exhaustion of nervous energy, and this brings about a lessening of the inhibitory. The neurasthenic's attempt at prolonged mental application ends in mental pyrotechnics, in the class of neurotics I have indicated, the end of mental application is a craving for relief through alcohol, though both classes are suffering from a disease allied to all the other "psychokinesæ."

The relationship between cause and effect in

dipsomania is not yet well established. The microscopical appearances of the brain tissue in the true dipsomaniac has not yet been studied, as all studies, Bevan Lewis' excellent work for example, having been on those of the chronic alcoholic. That continuous attacks of dipsomania cause pathological changes in the brain tissue is undisputed. It all depends on the original inherent strength of the brain how long the downward course takes. Usually some intercurrent disease or tissue degeneration cuts off the man before he has a chance of getting old.

A true understanding of just how the autotoxic substances affect the neurones so as to cause them to functionate abnormally, a clear comprehension of what is meant by neurosis, its histopathology and pathogenesis (Mettler) are necessary before we can clear up many perplexing problems that surround dipsomania. In this disease there is paralysis of inhibition allowing the obsession for narcotics to control the individual. This is due, in my opinion, to temporary disturbances of the cortical cells from toxins, though to what extent, if any, a true organic change has taken place in the receptive center or centers in these cases primarily is always uncertain. But for practical purposes we may say in all these cases that the will runs riotously. It has been generally considered that defective moral control is uncommon, if not impossible, apart from some general but hidden impairment of intellect having a physical basis. Upon this theory Mettler pertinently remarks "that the basis of a true neurosis is a constituent change of some sort in the nerve cells; for a disturbance of function sufficient to be recognized as a disease, with the preservation of normal structure, is a logical contradiction."

The idea that dipsomania is a disease directly inherited has no scientific basis; even as a working hypothesis it is untenable with our present knowledge of heredity. One writer¹ makes the following statement: "Dipsomaniacs are found *only* among persons who have inherited from drunken parents an impellent and periodic desire for strong drink." If the author of this statement had said that dipsomaniacs were found among those of inherited unstable nervous organizations, he would have been nearer the truth. I believe it is a fact well recognized by scientists, that heredity ignores any definite type of disease. The children of "drunken parents" are more apt to be imbecile, epileptic and moral defectives—than they are to be dipsomaniacs. Morbid peculiarities—not diseases—occasionally become in some degree fixed and transmitted in certain families, but it is seldom for more than a few successive generations, for so strong is the principle of return to a normal type that the family is more apt to die out than is this principle to fail. In these cases the law of heredity prevails, but between the laws which are to act and the indefinite variety of forces and circumstances upon which these laws may operate, lies a vast stretch of uncertainty. In other words,

¹ See Weir Mitchell's "Circumstance."

¹ Berkley, "Diseases of the Nervous System."

a functional disease does not necessarily take the form it had in a past generation. Environment controls the phenomena; this follows the law of material progress; the fundamental cause remains the same, but the effects are governed by circumstances; hence, men are more like the times they live in than they are like their fathers. Environment is a very important factor in deciding the future of a neurotic child. The central nervous system, whatever its natural perfection must be, is extremely responsive to surrounding social conditions, and thus growth processes in it are modifiable in no small degree, hence the condition which social status implies.

If my theory is correct, it is not difficult to outline the rational treatment, but all therapeutic methods are greatly modified by the personality of the physician, a factor that enters here more than in the treatment of any other functional neurosis. The patient must be impressed with the sympathy and understanding of the physician in these cases. The unfortunate victim of dipsomania is generally well versed in the objective symptoms, and none know better than he the fearful struggles and discouraging efforts made to fight the overpowering impulsive demand for alcohol. His wife has pleaded, threatened and blamed; his family physician has told him to use his "will power," his pastor has prayed for and with him, and those few friends who are cognizant of his "periodical sprees," have kindly said he lacked moral control. He, only, realizes how little his case is understood, and silently suffers under the ignorant lash of friends and foes.

When you have been able to abort or shorten an attack in an individual who has been accustomed to weeks of mental hebetude and psychic riot and who has given up all hope of ever avoiding the stigma attached to "a spreer," you have made the first long stride in curing your patient, for it is the knowledge that at least the attacks can be shortened to a day or so, that gives hope and courage. The following case is a good example of my method of treatment:

Case.—M. B., aged fifty-two years; came to me in 1897 with a perfect history of dipsomania. His position was a very responsible one with the United States Postoffice Department. He was obliged to travel extensively. For twenty years he had had attacks of dipsomania at varying intervals, about three or four a year, during which he disappeared from his home or official desk, and remained away on the average two weeks. During this time he would stay in some dark, uninviting rum hole until found by his wife or friends. The recovery was typical, as were the memories of his acts or time. He had but little faith in the various advertised cures, as he had seen the sad results in many of these "graduates."

After explaining my ideas, he immediately cooperated with me, and thus the first difficulty was over. I first put him on a diet that avoided proteids; for it must be remembered that an exclusive proteid diet causes the formation of excessively large quantities of soluble peptones and al-

bumoses, which have an exciting action on the nervous system and constitute a favorable basis for the development of all kinds of neuroses. For a month he was given daily a mild purgative, a natural water, and a Turkish bath twice a week; for *elimination* is the watchword with these patients. This treatment was continued for four months, except that at the end of the first month the purgative was taken but twice a week, and the bath once a week. At the end of four months I was telegraphed to go to him, the message coming direct from him and telling me where to find him. He had been on a long journey, and, upon arriving in Washington, felt a desire for some stimulant. It was not the old rabid impulsiveness, but yet there was a feeling of indecision. He was afraid to move, so sat down in the café of a well-known hotel and wired me. I found him slightly the worse for liquor, but grateful for my arrival, and he gladly went to his home with me. I immediately put him on nitrate of strychnine, gr. 1-20 every four hours, and in forty-eight hours he was himself again. For the suboxidation, which I felt was constant in this case, I taught him deep-breathing exercises. Two years he was under my treatment, having a second attack lasting only two days at the end of the second year. Since then he has been free from any feeling or desire for alcohol.

The amount of strychnine that can be given to these cases when the psychic explosion takes place is astonishing. The drug seems to be utilized in the physiologic economy, for it can be pushed in these patients to what would be an extremely dangerous point in a normal individual, without any signs of intolerance. I keep my patients on this drug for two years or more, having them take 1-30 of a grain t.i.d. for a month, then dropping the drug for six weeks to take it up again for another month. The patients are taught to understand that only by avoiding proteids as much as possible, and by constant watch over all methods of elimination, can they prevent the attacks of dipsomania. I have them thoroughly understand that there is no specific for these attacks; that it is a physiological question purely, and under their own control.

This is a very crude outline of a typical case, but as each patient is a law unto himself, as there are details as numerous as are the varied traits of the neurotic, further remarks would be surplusage. Suggestion in all cases is of great value—especially with those who have become discouraged. Even after you have treated a hundred cases of dipsomania you will find that to be successful each case will have to pass through the alembic of your synthetic experience.

American Neurological Association.—The American Neurological Association meets at St. Louis at the Planters Hotel, instead of in the World's Fair Grounds, as originally planned. The sessions will last from 9 A.M. to 1 P.M. daily. A general invitation to attend is extended to the medical profession.

MEDICAL PROGRESS.

PHYSIOLOGY.

The Alcohol Content of the Organs.—That alcohol in small amounts is found preformed in the animal tissues, is the conclusion drawn from his experiments by G. LAUDSBERG (*Hoppe-Seyler's Zeitsch.*, May 26, 1904). During autolysis the quantity of alcohol does not increase, but it does increase as the result of bacterial decomposition. The origin of the alcohol in the tissues has not been definitely determined. It is probable that it originates in the gastro-intestinal canal, from the decomposition of carbohydrates by means of yeast cells or bacteria.

The Influence of Castration Upon the Thymus.—That there is some intimate relationship between the sexual organs and the thymus, is shown by the experiments of J. HENDERSON (*Jour. of Physiol.*, June 30, 1904), who found that castration in cattle causes a persistent growth and a retarded atrophy of the thymus gland. Castration has a similar effect in guinea pigs and rabbits. In bulls and unsprayed heifers the normal atrophy of the thymus begins after the period of puberty and is greatly accelerated when the bulls have been used for breeding and when the heifers have been pregnant for several months.

Chemical Regulation of the Secretory Process.—The phenomena of life reveal a series of adaptations to the environment. Only recently have physiologists sought to discover the various adaptations of the parts of the organism to changes in the internal environment, to variations in food, and to the manifold changes in the external environment that include climate, altitude, and the host of bacterial infections. The study of the adaptive capacity of the organism has been applied to the secretory mechanism by W. M. BAYLISS and E. H. STARLING, whose results are described in the Croonian Lecture (*Proc. Royal Soc.*, May 28, 1904). There are two main types that distinguish the complex reactions that make up the life of the individual. The first type of adaptation is dependent on the adaptive growth of cells, and includes those reactions that depend for their production on some special structural arrangement, *e.g.*, the formation of protective tissues and the development of the central nervous system. The second type, which is the more primitive, involves not so much a change in the growth or arrangement of cells as a change in the metabolism of preformed cells or structures. This is chemical adaptation and comprises two groups: (1) Chemical adaptation to the environment, *e.g.*, the mould *penicillium crustaceum*, when grown on calcium lactate, forms invertase only; on starch, however, it produces amylase in addition, while on milk it produces a proteolytic ferment and rennet. The phenomena of acquired immunity belong to this group, and likewise the process of assimilation of food and the adaptation of the animal to changes in diet; (2) the mechanism of internal correlation, effected partly by means of the nervous system and partly by the blood; *e.g.*, the influence of the thyroid gland upon the nutrition of the entire body; and the vasomotor influence of the internal secretion of the suprarenal bodies. The researches of the authors relate to the adaptation of the organism to changes in food and the chemical correlation of the digestive and assimilatory organs. In the mouth is the nervous reactive mechanism controlling the secretion of saliva. The activity of the salivary glands is excited reflexly according to the nature of the substance present in the mouth. The same is true of the reflex secretion of the gastric juice. The secretion of the pancreatic juice is determined by a nervous reflex, initiated by the

stimulation of the intestinal mucous membrane by the chyme. Not only is the pancreatic juice poured into the intestine exactly at the time that it is required, but also the composition of the juice varies according to the food, the proteolytic enzyme being increased by a diet of meat while the amylolytic ferment is increased by a diet of starch. This form of adaptation was ascribed by its discoverer, Pawlow, to a species of "taste" in the mucous membrane, in which different nerve endings are stimulated by different kinds of food. Later researches have shown that these pancreatic adaptations may occur even when all the nervous paths from the intestine are cut, as shown by Popielski and Wertheimer, who found that under the above conditions the introduction of acid into the intestine produced a flow of pancreatic juice. The authors confirmed this result. This showed that one is here concerned with a chemical rather than a nervous mechanism. The introduction of acid into the blood did not produce the effects, which were evidently due to some change produced in the acid in its passage to the blood-vessels through the epithelial cells, or to the production in these cells of some substance, which when carried to the pancreas evokes a secretion. This was found to be the case, for rubbing up the mucous membrane with acid and injecting the mixture into the blood stream produced a copious secretion of pancreatic juice. The active substance thus produced in the mucous membrane is "secretin," whose precursor "prosecretin" cannot be extracted by any means. The most active extracts of secretin are obtained from the duodenum. Secretin can be split off from its precursor by the action of acids or boiling water. The power of the acids in this respect is proportional to their ionic concentration. The authors conclude that the process is one of hydrolysis. The fact that secretin will stand boiling shows that it is neither a coagulable proteid nor a ferment. It is not precipitated by tannic acid, thus excluding bodies of alkaloid nature as well as di-amido compounds. This evidence points to secretion as being a body of relatively small molecular weight and not a colloid. It may be compared to adrenalin. The bodies of higher molecular weight, such as the toxins, which owe their activity, according to Ehrlich, to the fact that they can be directly assimilated by the cells of the body, and built up into the protoplasmic molecule, always give rise to the production of anti-bodies, a process which, while not preventing necessarily their utilization in the body, would prevent their acting as a physiological stimulus to certain definite cells. Adrenalin and secretin, on the other hand, belong to the substances which act by their physico-chemical properties, and whose physiological effect is determined by the total configuration of their molecule. That the pancreatic juice is not an anti-body to secretin is shown by the fact that both substances can be mixed without impairing the efficiency of the pancreatic juice. Secretin is easily oxidized by the body and is got rid of in this way. It also resembles adrenalin in not being specific for the individual or species. The evolution of this mechanism is therefore to be sought at some time anterior to the development of the vertebrates. Secretin increases likewise the secretion of bile. It has moreover no specific influence on any one constituent of the pancreatic juice. Secretin causes the pancreatic cells to turn out the whole of their granules, which they have accumulated during the resting stage. But secretin also excites a building up of the protoplasm and a new formation of granules. It has been shown by Dall that after the discharge of the granules the cells undergo a further involution, and become transformed into cells undistinguishable from those known as the islets of Langerhans, and believes that the latter repre-

sent stages in the functional activity of the secreting cells of the gland. The conditions under which secretion is formed, determine a close adaptation of the pancreatic activity to the needs of the animal. The presence of an excessive amount of acid in the duodenum is prevented by the reflex pyloric mechanism. The pancreatic juice as secreted contains only a weak proteolytic ferment. But it contains also trypsinogen. As it enters the gut, it causes a profuse secretion of intestinal juice, which contains a ferment, enterokinase, which acts on the trypsinogen converting it into the active ferment, trypsin. Another interesting adaptation of the pancreas is that which results in the change of diet. Thus Weinland has shown that while the pancreatic juice of dogs normally does not contain lactase, yet when the animals are fed on milk (containing lactose), the ferment lactase is secreted. This reaction is absolutely specific. Although lactase is normally present in the intestinal mucous membrane, the appearance of this ferment in the pancreas is not due to the increase of its formation in the mucous membrane and escape into the blood. Extracts of the mucous membrane of the intestine of milk-fed dogs, when injected into the blood of biscuit-fed dogs, causes in the latter the production of lactase. What substance it is which is produced in the mucous membrane, and when carried to the pancreas and there excites the formation of lactase, is not known. It is destroyed by boiling. The chemical adaptations above described are more complex than any others yet investigated, and show the intimate correlation in the chemical reactions of different parts of the body.

Chemistry of Anesthesia.—A valuable study of certain physical and chemical properties of solutions of chloroform in water, saline, serum and hemoglobin was made by B. MOORE and H. E. ROAF (*Proc. Royal Soc.*, May 28, 1904). The authors set out with the supposition that the anesthetic power of the hundreds of anesthetics is dependent upon some general type of interaction between the anesthetic and the active part of the cell. As the result of their experiments they draw the conclusion that chloroform forms an unstable chemical compound or physical aggregation with the proteids experimented with, and that it is carried in the blood in such a state of combination. Anesthesia is due to the formation of compounds of chloroform and other anesthetics with proteids which compounds limit the chemical activities of the protoplasm. The compounds are unstable, and remain formed only so long as the pressure of the anesthetic in the solution is maintained. Such compounds are formed not only by hemoglobin but also by serum proteid, and hence the position taken by the anesthetic in hemoglobin is not that of respiratory oxygen. This is further shown by the fact that the oxygen-carrying power of hemoglobin is not interfered with in the presence of chloroform. The facts upon which the authors rely as proofs of the formation of the above compounds in aggregates, are as follows: Chloroform has a much higher solubility in serum or hemoglobin solutions than in saline or water. Even in dilute solutions at the same pressure the amount of chloroform dissolved in serum or hemoglobin solution is considerably higher than in saline or water. The curve of pressures and concentrations in the case of water and saline is a straight line, while in the case of serum and hemoglobin solution it is a curve, showing association at the higher pressures. In the case of serum, chloroform causes a marked opalescence, and also a slow precipitation at room temperature, and at body temperature a rapid, though incomplete precipitation. In the case of hemoglobin, one and a half to two per cent. of chloroform causes a change of color and commencing precipitation at room temperature, which becomes almost complete in the uttermost at 40° C., while five

per cent. and over causes complete precipitation at 0° C. The relations between chloroform pressure and concentration in solution have been worked out throughout a long range, from below the anesthetizing values (8 to 10 mm.) to nearly saturation in the case of water, saline, and serum. Attention is drawn to the important physical fact that with the same percentage of chloroform in the air breathed, serum or hemoglobin, and therefore the blood will take up much more chloroform than would water or saline under equal conditions. Thus at the anesthetizing pressures, and at 40° C., the coefficient of distribution in the case of water and saline is approximately 7.3; at room temperature (15° C.), these coefficients become 8.8 and 17.3 respectively.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

New Theory of Cancer.—It is not so long ago that a foremost scientist expressed himself doubtful as to whether the secret of the cancer-cell would ever be solved; it is therefore encouraging to encounter a new plausible theory, based upon accurate observation. In brief, G. KELLING (*Münch. med. Woch.*, June 14, 1904) believes with the older authors that the cancer cell is an embryonal cell endowed with all the energy of growth of young tissue; his theory differs, however, in that he does not regard it as a modified normal cell, but as altogether foreign and introduced from without. Thus embryonal cells are often ingested in raw eggs and the larvae of certain fish form a staple article of food. It is even possible that insects may inoculate these cells directly into the blood. Numerous experiments bear out this view, and the author was able to produce malignant neoplasms (malignant adenoma, carcinoma and sarcoma) in every case where comminuted embryonal tissue was injected into the veins of dogs. Still more convincing proof was obtained by the precipitation test. Several pyloric cancers, removed at operation, were communicated and injected into rabbits in increasing doses. The serum of these animals precipitated the extract of the cancer employed, human albumen and chicken albumen, but not albumen from any other source; thus making it exceedingly probable that the cancer cells took their origin from the embryonal tissue of ingested eggs. In support of the heterologous origin is the fact that nobody has ever observed the transition of normal into malignant epithelium even in the most early growths. It is a well-known fact in biology that all cells of one species possess the same number of nuclear chromosomes; cancer cells differ, however, in this respect from the other cells of the body. Furthermore, the cells behave differently toward X and radium rays and possess a different osmotic pressure, and there can hardly be any doubt that they are foreign.

Neutrophile Leucocytes in Infectious Diseases.—In certain febrile disorders, the leucocytes are within normal limits and chiefly polynuclear. According to J. ARNETH (*Münch. med. Woch.*, June 21, 1904), it is a great mistake to pronounce such blood normal for the shape and structure of the nuclei possesses pronounced characteristics. In normal blood, the great majority of the nuclei of the neutrophiles possess two or three distinct lobes (isocytosis), but in all infections or intoxications, no matter whether a leucocytosis is present, cells with a single nucleus (myelocytes), an indented nucleus or a nucleus with only one lobe are more numerous (anisocytosis). Since these cells are the younger elements, their presence is probably an expression of increased disintegration of leucocytes.

Action of Roentgen Rays.—Most observers believe that the skin is affected primarily and most strongly by the X-rays if a portion of the body is exposed to

their influence, but G. BAERMANN and P. LINSE (Münch. med. Woch., June 7, 1904), make the startling statement that the blood vessels react before the skin. All lesions of the skin and connective tissue are thus an expression of nutritive disturbance secondary to vascular alteration. The following experiments support this view: If a diseased area of the skin is excised the raw surface may be covered with skin-graft which will rapidly heal in place. If the skin is first exposed to the Roentgen rays before it is transplanted the healing will be just as rapid, while an equal amount of exposure where the skin is not removed, will lead to superficial ulceration. One may even preserve the exposed grafts for two days in normal salt solution and then transplant them successfully on some other individual, showing that there is not the slightest loss of vitality. If a granulating surface is exposed and then covered with normal grafts, these will be cast off a few days later. The cornea of a rabbit will not be influenced by an exposure which causes falling out of the hair in other parts of the body, simply because the cornea contains no blood-vessels. The blood itself does not seem to be affected by the X-rays for even prolonged exposure, both in vivo and in vitro, did not change the microscopical appearance or the hemolytic power. The most important systemic reaction after exposure is a slight increase in temperature and an increased metabolism, manifesting itself in an abundance of nitrogenous material in the urine.

The Circulatory System in Relation to the Curability of Tumors.—That tumors are more readily subjected to injury from without than normal tissues, because the circulating blood does not enter into close physiological relation with them, is the statement made by H. RIBBERT (*Deutsche med. Woch.*, May 26, 1904). For tumors are not, like the regular organs, supplied by normally constructed vessels. The latter are simply tubes, made up in great part of endothelium, and not able to take part in blood pressure changes. Instead of branching like normal vessels, they constitute a network of interlacing canals. The size of these vessels, as regards their total area, is entirely out of proportion to the amount of tumor tissue supplied by them, for a large pedunculated growth may be nourished by a comparatively small vessel. The blood current is also slowed by the numerous sacculations and dilatations found in the course of these vessels. The rapid increase in size of certain tumors may be explained by assuming that the nutrient materials from the blood are entirely taken up by the tumor cells for purposes of growth and reproduction, as there are no other functioning powers to be supplied.

Leishmania-Donovani in the Soudan.—This disease is rare in Africa, unless it is that the cases have not been recognized. One reported by SHEFFIELD NEAVE (*Brit. Med. Jour.*, May 28, 1904), being the second one discovered in that continent. The case was that of a boy, eight years of age, who had come from a village, 800 miles up the river, to be treated for chronic diarrhea. He recovered from this, but had a daily intermittent rise of temperature. He was extremely emaciated, his spleen reaching to the navel. All the important lymphatic glands were also enlarged. The peripheral blood was negative, but the splenic blood was crowded with Leishman-Donovan bodies. There was an enormous increase in the large mononuclears. Their count averaged 67 per cent. The history of the child was that the spleen had begun to enlarge in infancy. The cerebrospinal fluid was sterile and the urine contained nothing abnormal. The bodies have a somewhat oval form resembling a grain of wheat. They contained besides the nucleus a small rod-like body. This ap-

parently varies in size, its greatest length being somewhere about half the diameter of an average red corpuscle. The bodies may occur singly, or they may appear to be collected in a spherical envelope about the size of a large white corpuscle. In this form or stage the individuals are often of differing sizes, and very often open spaces appear which suggest the thought that some have dropped out. If the slightest amount of water be mixed with the blood, or even if it be received into the citrate solution to prevent coagulation, the body will appear to disintegrate. This would seem to show that the next step in their life's history was not extracorporeal and that they do not escape by the urine.

Symmetrical Exostoses of the Scaphoid.—These symmetrical growths most frequently occur at the juncture of the epiphyses with the diaphyses of the long bones or upon the short bones which have multiple points of ossification. FERE and DENIKER (*Revue de Chir.*, April, 1904), present the photographs and radiographs of a most interesting case in which this peculiar formation on the scaphoid was particularly well marked. It was so large as to be very prominent beneath the skin, and its base was about three centimeters in diameter. The only possible explanation of this phenomena is to be found in some anomaly occurring in the evolution of the individual.

The Leishman-Donovan Bodies.—These interesting parasites are often associated with splenomegaly in India and other tropical countries. They have usually been found in the spleen, liver and bone marrow. Sir PATRICK MANSON and GEORGE C. LOW (*Brit. Med. Jour.*, May 28, 1904), report having found the bodies in the lymphatic glands of the mesentery in a patient dead from the disease. Sections of the pancreas, kidney and large and small intestines showed nothing. This information is valuable, because it is along these lines that the life history of the organism will have to be worked out.

Chemical Examination of Diseased Kidneys.—It is a peculiar fact, emphasized especially by A. ORGLER (*Virchow's Archiv.*, Vol. 176, No. 3) that the chemical examination and microscopical appearance of pathological kidneys does not always correspond. Thus the microscope may give evidences of advanced fatty degeneration, while less fat will be found chemically than in normal organs. The author believes that many of the highly refractive granules that are looked upon as fat are not really fat, but protagon, a proteid, which also reduces osmic acid to some extent. Normally this protagon is contained in the cell in chemical combination with another proteid, which is destroyed by autolysis so that the protagon crystallizes out.

Pathology of the Aortic Valves.—Normally the aortic valves consist of three layers: A ventricular layer consisting chiefly of elastic fibers, a middle layer made up of loose connective tissue and an aortic layer of transverse fibers without elastic elements. Vessels do not occur in any layer. In the simplest pathological lesion, the slight thickening of the attached border, J. G. MÖNCKEBERG (*Virchow's Archiv.*, Vol. 176, No. 3) could only detect a thickening of the fibrous inner layer with fatty degeneration of the intercellular substance and areas of necrosis and calcification. If more advanced, the process still remains restricted to the inner layer, where the necrotic foci become confluent and the deposit of lime is more marked. In far advanced cases with rigid, insufficient valves, the middle and outer layers are also implicated, and the process extends from its starting point, the base, to the free edge, so that the entire valve will become converted into

a rigid, unyielding plate. Where atheromatosis is secondary to a similar process in the beginning of the aorta the lesions are somewhat different, since the sclerosis begins in the outer layer and descends from the free to the attached border.

Pathology of Molluscum Contagiosum.—Many theories have been advanced to explain the contagious nature of that peculiar skin disease known as molluscum contagiosum, and various authors claim to have discovered protozoa within the cells of the tumors. H. HERZOG (*Virchow's Archiv.*, Vol. 176, No. 3) finds, however, that these peculiar structures are solely due to hyaline degeneration and by a special stain he could accurately study the evolution of the so-called molluscum bodies from the normal basal epithelium. An interesting discovery which may explain the infectious nature of the disease, is the finding of large numbers of staphylococci in the excretory ducts and the surrounding tissues.

Action of Fluorescent Substances on Bacteria.—Bacteria seem to be more resistant to the action of photodynamic substances than protozoa. A. JODLBAUER and H. V. TAPPEINER (*Münch. med. Woch.*, June 21, 1904), find that losin mixed with bacteria and exposed to the light has hardly any influence, erythrosin will kill off the culture in two to four days and rose bengale and methylene blue in one to two days. Certain other dyes are entirely inactive, though strongly poisonous to paramecium. This is explained best by a lack of diffusibility, the dye being unable to enter the protoplasm of the bacteria. Fluorescent substances produced by bacteria themselves are equally as toxic for bacteria as the synthetic dyes.

The Significance of the Zoological Distribution, the Nature of the Mitoses, and the Transmissibility of Cancer.—In a paper read before the Royal Society, E. F. BASHFORD and J. A. MURRAY (*Proc. of the Royal Society*, Vol. LXXIII, No. 489), give some interesting results of work done under the auspices of the Cancer Research Fund. As regards zoological distribution, it is found that cancer is found among all domesticated animals and many other vertebrates, even among animals living in a state of nature, e.g., wild mouse, cod-fish, gurnard. The clinical, pathological, anatomical and microscopical characters of these new growths are identical with those found in man in all essential features, although the animals themselves are remotely related. The marked difference in the various environmental conditions, such as food, climate and mode of life, in the different forms in which malignant growths occur, shows that external conditions play at least a minor rôle in the etiology of cancer, that the cause of this disease is rather to be sought in the living cells. In general, malignant growths are found to occur chiefly in animals that are examined with care, as the horse, dog and cow, and are unrecorded in forms which are difficult to examine or do not reach old age in considerable numbers. The authors were able to confirm the important observations of Farmer, Moore and Walker, namely, that while the growing margin of carcinomata and sarcomata presented mitoses similar to those found in other tissues in repair and inflammation, certain cells in the deeper layers, after a slight increase in size, entered on mitosis with ring chromosomes similar to those found in the heterotype division of sporemother cells of plants and spermatocytes of animals, and like these, with chromosomes in number only half that characteristic of the mitoses of somatic cells. The latter investigators concluded that malignant new-growth is virtually reproductive tissue arising in abnormal situations and possessed of an independence

and power of growth like that of the testis in the mammalian body. The authors confirmed the observations of Farmer, Moore and Walker, by studies on tumors from the trout, mouse and dog. They also noted the following important points: A complicated sequence of cell changes has been found to be characteristic of carcinoma and sarcoma alike. This sequence is the same as that which initiates the origin of the sexual generation in plants from the asexual, and is terminal in the history of the sexual cells in animals. All the cells of the malignant new growths do not undergo the reducing division, a certain number differentiate in the direction of the tissue among which they have arisen, and in secondary growths, when present, somatic mitoses occur in the growing margin, which is also a feature of the growth of cancer when transferred to a new host. The transmission of cancer from man to animals, or from one animal to another of different species, has never been successfully performed. But the authors confirmed the observations of Jensen, that it is possible to transplant cancer from one animal to another of the same species. The experiments were performed on mice. The new tumors that develop at the site of inoculation arise from the actual cells introduced. While many of these degenerate, a few remain by normal size, and these gradually increase in number. Transplantation is in fact identical with the process of metastasis as it occurs in the individual providing the tumor. The process is in no sense an infection, the tissues of the new host not participating in the formation of the new parenchyma. In every mouse in which the transplantation succeeds, the new growth may attain a weight equal to that of the animal itself, and over 400 such transplantations have been effected by Jensen in Copenhagen and the Cancer Research Fund in London. A mass of tumor, 16 pounds in weight, has thus actually arisen from the original one, and that without participation of the cells of the various hosts and without manifest change in structure. This power of growth is a phenomenon unparalleled in the mammalia. The authors emphasize the importance of distinguishing between the problem of the genesis of a malignant new growth, and that of the conditions which permit of its continued existence. Among 1,000 tame mice they found two with cancer. The wide zoological distribution of malignant new growths indicates that the cause of cancer is to be sought in a disturbance of those phenomena of reproduction and cell-life which are common to the forms in which it occurs. The authors' observations also showed that malignant new growths are always local in origin and of themselves produce no evident constitutional disturbances whatever. The evidence which they have advanced that cancer is an irregular and localized manifestation of a process, otherwise natural to the life-cycle of all organisms, probably explains why it is that malignant new-growths and their extensive secondary products, are devoid of a specific symptomatology.

The Liver in Portal Thrombosis.—According to F. STEINHAUS (*Deut. Arch. f. klin. Med.*, Vol. 80, Nos. 3 and 4) thrombosis of the portal vein may occur both with and without distinct disease of the walls of the vein. In the majority of cases no changes take place in the liver, since the circulation of blood is not impeded and the liver receives its full amount of nutrition. If, however, the venous circulation is interfered with, especially the hepatic venous circulation with diminished arterial blood supply, the so-called atrophic red infarcts will result. These foci are sharply circumscribed, rectangular or wedge-shaped and generally dark-red in color. Microscopically, the capillaries are

distended with blood, the liver cells are atrophic and the portal branches thrombosed. If the thrombosis extends into the interlobular branches of the portal vein, necrosis and hemorrhage will follow. The branches of the hepatic artery may be normal or diseased, yet the arterial blood supply is completely shut off here. Acute thrombosis manifests itself clinically in severe abdominal pain and copious hemorrhages from those organs drained by the portal vein. Complete occlusion is generally fatal, partial obstruction will eventually lead to ascites, splenic tumor and periodic hemorrhage. The most common etiology is syphilis, tuberculous peritonitis, compression by tumors, glands and gall-stones.

Chronic Infection and Subinfection by the Colon Bacillus.—By repeated intravenous injections of living cultures of the colon bacillus into rabbits, G. A. CHARLTON (*Jour. of Med. Research*, May, 1904), caused the development of a state of advanced anemia, not quite comparable with any of the classic forms seen in man. In some respects it resembles pernicious anemia, namely, in the very great diminution of erythrocytes, the marked poikilocytosis, and the appearance of nucleated red corpuscles. On the other hand, it differs from pernicious anemia in the fall of the amount of hemoglobin being parallel with the decrease of the red corpuscles, in the absence of a distinct and extensive Inincke's siderosis, in the absence of any clear evidence of inflammatory or other disturbances of the digestive tract, and of well marked changes in the bone-marrow. In the advanced stage of this anemia a diffuse degeneration of the spinal cord was set up, affecting the posterior and lateral columns of the cord, in the lumbar and dorsal regions. This degeneration consisted in a fatty degeneration of the myelin sheaths of the fibers and certain pigmentary changes, in the nerve-cell bodies of the gray matter. The ventral columns of the cord and the gray matter were not affected. Similar conditions of anemia and spinal cord degeneration could not be produced by injecting killed cultures of the colon bacillus, nor by filtered cultures. When the living cultures were acted upon by pepsin, and injected intravenously, they did not differ materially in their action from the original living cultures.

Lymphatic Glands in Sleeping Sickness.—In examining the contents of the lymphatic glands during life in patients suffering from sleeping sickness, E. D. W. GREIG and A. C. H. GRAY (*Proc. Royal Soc.*, June 22, 1904) found the presence of actively motile trypanosomes. The latter are far more numerous in the glands than in the blood or cerebro-spinal fluid, and the examination of fluid removed from the glands will prove to be a much more rapid and satisfactory method of diagnosing early cases of the disease. The authors believe that these observations throw a new light upon the glandular enlargements which have been so constantly noticed in sleeping sickness, and that the disease is essentially a polyadenitis brought about by the arrest of the trypanosomes in the glands where many of them are destroyed, but whence some escape from time to time into the blood stream and this occasions the increase which has been observed in the peripheral circulation.

Heat Regulation and Death Temperatures.—In studying the variations of the bodily temperature as death approaches E. M. CORNER and J. E. SAWYER (*Proc. Royal Soc.*, May 28, 1904) propose the following theory for the causation of pyrexia. It is due to two factors, to an augmented production of heat owing to the activity of the thermogenetic centers in the spinal cord being no longer perfectly controlled by the higher center in the brain, and to a diminished loss of heat

owing to the weakening of the functions of the thermolytic center; the power of the two higher centers being weakened or paralyzed by the morbid products or toxins of the affection from which the organism is suffering. In other words, normal temperature is preserved by a mutual see-saw action of these centers.

Lipase in the Urine in Experimental Pancreatic Disease.—It is possible to show the presence of lipase in the urine and to roughly estimate the amount, according to A. W. HEWLETT (*Jour. of Med. Research*, May, 1904). Very little, if any, lipase is present in normal urine. Lipase appears in the urine after a variety of insults to the pancreas of dogs. It was found in great amount as a result of experimental acute hemorrhagic pancreatitis. It was also found over a period of from three to five days after obstruction of the pancreatic duct. It is probable that severe pancreatic trauma may cause the appearance of lipase in the urine. The above are the conditions in which fat necroses are most apt to occur in human pancreatic disease.

The Action of Radium on Micro-Organisms.—A specimen of pure radium bromide was used in a series of experiments by A. B. GREEN. (*Proc. Royal Soc.*, May 28, 1903) in an effort to determine the germicidal powers of the emanations, and whether the radio-activity may be imparted to bacteria. In using calf vaccine with its contained extraneous bacteria, the *S. pyogenes aureus*, *S. pyogenes albus*, *S. cereus flavus*, *S. cereus albus*, the author found that the specific germ in no case survived a longer exposure to radium than 22 hours, at the end of which time it had completely lost its ability to cause vesiculation or any visible irritation at the site of inoculation on a calf. The extraneous bacteria did not survive after 15 hours. The following species of micro-organisms were separately tested: the extraneous germs above mentioned, and *S. pyogenes*, *B. prodigiosus*, *B. proteus vulgaris*, *B. pyocyaneus*, *B. typhosus*, *B. coli communis*, *B. Mallet*, *B. pestis*, *B. tuberculosis*, the *B. of Malta* fever, *Spirillum cholerae Asiatica*, and the sporing cultures of *B. mesentericus vulgatus*, *B. mesentericus ruber*, *B. subtilis*, *B. anthracis*, *B. tetani*, Gärtner's *B.*, the bacillus of malignant edema, and the bacillus of Rauschbrand. All the non-sporebearing bacteria mentioned were killed after exposure to radium for 2-14 hours. The bacteria containing spores were by far the most resistant to the germicidal action of radium, for they were not killed by less than 72 hours' exposure. It has been found that after exposure at a distance of one min. to the radium emanations for 24 to 120 hours, micro-organisms may themselves show signs of radio-activity. It has not yet been determined whether living micro-organisms can exhibit induced radio-activity. No radio-activity has been found in bacteria not exposed to the action of radium.

The Role of the Blood Fluids in Connection with Phagocytosis.—A continuation of their interesting researches along this line has been made by A. E. WRIGHT and S. R. DOUGLAS (*Proc. Royal Soc.*, March 7, 1904). In their previous experiments the authors found that the phagocytosis which occurs when cultures of *S. pyogenes* are added to the human blood is directly dependent upon the presence of certain substances in the blood which exert a specific effect upon the bacteria. The bacteriotropic substances thus revealed were denoted by the term "apsonius." The authors now find that the apsonic power is exerted not exclusively upon the *Staphylococcus pyogenes*, but also upon the *B. pestis*, the *Micrococcus melitensis*, the *Diplococcus pneumoniae* of Fraenkel, the *B. coli*, the *B. dysenteriae* (Shiga), the *B. anthracis*, the *B. typhosus* and the *Vibrio cholerae*.

Asiatica. As far as the authors have gone, the *B. xerosis* have proved to be the only pathogenetic bacteria which are insensible to this action of the blood fluids. The bacteria are accordingly classified as follows: (1) Bacteria which are eminently sensible to the bactericidal, bacteriolytic, and apsonic action of the normal human blood fluids.—The *B. typhosus* and the *Vibrio cholerae Asiatica*. (2) Bacteria which are in some measure sensible to the bactericidal action of the normal human blood fluids, but are eminently sensible to its apsonic action.—The *B. coli* and the *B. dysenteriae*. (3) Bacteria which are absolutely insensible to the bactericidal action of the normal human blood fluids, but are eminently sensible to the apsonic action of these fluids. The *Staphylococcus pyogenes*, the *B. pestis*, the *Micrococcus melitensis*, the *Diplococcus pneumonia*. (4) Bacteria which are insensible both to the bactericidal and to the apsonic action of human blood fluids.—The *B. diphtheriae* and the *B. xerosis*. It has been shown that patients who are the subjects of acne, sycosis, or boils are characterized by defective phagocytic power for the *Staphylococcus pyogenes*. The latter is dependent upon a defect of apsonic power. The authors demonstrated that successful immunization against *Staphylococcus pyogenes* is dependent upon the elaboration of apsonius in the system of the inoculated patient, and suggest that successful immunization against plague and Malta fever and against streptococcal invasions may be likewise dependent upon the elaboration of apsonius.

The Influence of Alcohol, Ether, and Chloroform on Natural Immunity.—That alcohol, ether, and chloroform have a decidedly detrimental influence in the natural defenses against infection has been proved experimentally by G. RUBIN (*Jour. of Infectious Diseases*, May 30, 1904), who also found that this lowering or suspension of the resisting power of the animal is not due to any apparent organic lesions. The narcotics appear to affect directly the substance or substances which inhibit the growth and toxic action of bacteria in the normal animal and these substances are either the leucocytes themselves or something derived from them, or both. Snee has shown in his work that alcohol and ether suspend also conferred immunity against a specific microbe. The period of detrimental action of the narcotic depends largely on the amount administered, the depth of narcosis, and the rapidity of its elimination from the system. Some of the narcotized animals that were employed in other experiments with infectious material 24 hours after narcotization fared as well as the new rabbits.

OBSTETRICS AND GYNECOLOGY.

Eclampsia.—An excellent review of our present knowledge of this subject is presented by P. ZWEIFEL (*Archiv. f. Gyn.*, Vol. 72), in which particular attention is paid to the quantitative chemical analyses of the urine and blood. The former have been directed to the estimation in the urine of the albumin, and nitrogenous or non-nitrogenous disintegration products of albumin, and the latter to the quantitative analysis of the blood as regards uric acid and the salts of ammonia. At the beginning of an eclampsia, the urine contains a diminished amount of uric acid, which is the end product of albumin metabolism, and which increases again as recovery is brought about. There is no increase to be found, however, of the amount of uric acid in the blood, nor is there any increase of the NH_4 . The conclusion to be drawn from these facts is that there is a marked interference in the process of oxydation of the albumin. The author is inclined to the belief that lactic acid or neutral sulphur is the toxic product which induces the convulsions. In the section on treat-

ment, Zweifel advises as a prophylactic measure, the administration of tartrates in the food, which should comprise plenty of fruit and vegetables and little meat or eggs. Farinaceous foods and sugar may be taken in moderation, as they are not concerned in this disturbed metabolism. When the attacks have already come on he advises the administration of tartrate of potash or soda, if necessary through the stomach tube, and also the subcutaneous transfusion of a solution containing bicarbonate of soda (0.5 per cent.) and sodium chloride (0.5 per cent.) in distilled water. Narcosis by chloroform or other drugs is not recommended, and diaphoresis has not been followed in his experience, by sufficiently favorable results to warrant its employment. Immediate delivery is considered by Zweifel to be the most effective measure for saving the life of the patient, and he recommends forcible dilatation of the cervix when necessary, by means of bags in preference to instruments of the Bossi type. If this is ineffectual, he makes deep incisions into the cervix, essentially a vaginal Cæsarian section. The first indication in all cases, however, when they first come to the attention of the physician during the attack, is to immediately rupture the membranes.

Laryngeal Tuberculosis and Pregnancy.—The association between these two conditions has been considered intimate enough to warrant the induction of labor where tuberculosis of the larynx was present. R. SOKOLOWSKY (*Berl. klin. Woch.*, 1904, No. 27) reports two cases where even this radical procedure failed in its effects and the disease progressed until the patients died within a few weeks after delivery. In one woman labor was induced during the eighth month, in the other during the sixth. In connection with two similar cases lately reported from another source, the author believes that the interruption of pregnancy is of no value unless done during the early months and woman afflicted with tuberculous laryngitis should be warned of their danger and a facultative sterility advised, in order that they may not become exposed to these grave possibilities.

Prognosis and Treatment of Puerperal Pyemia.—As the results of his extensive experiences, E. OPITZ (*Deut. klin. Woch.*, 1904, No. 27) believes that only in exceptional instances should operative treatment be directed toward ligation or removal of the diseased veins, as recommended by Trendelenburg, or toward total extirpation of the uterus as suggested by Schultze. The indications and the recognition of the side on which the process is localized, are entirely too difficult and uncertain. The objects of treatment should be to strengthen the system in its fight against the infection and to avoid further damage. The author's recommendations are, proper nourishment (albuminoids, sugar, milk, little alcohol); an abundance of fluid by os, rectum and infusions; absolute rest; sedatives, such as pyramidon, phenacetin, salipyrin, sometimes camphor or digitalis. Diarrhea he does not combat. No favorable results followed the injection of turpentine oil or silver salts. In the future he believes that good results may be looked for with treatment by nuclein, antipyrin and collargol (intravenously). Good and efficient nursing is of the greatest importance.

Borax in the Treatment of Epilepsy.—This much lauded remedy has been given a practical trial by J. HOPPE (*Berl. klin. Woch.*, 1904, No. 27) in a series of 12 cases. In seven of these the drug was followed by no favorable effect whatever, and in some few instances the patients grew worse. The latter presented some functional derangements of the excretory organs.

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"THE WAY WE HAVE IN THE ARMY."

THE qualifications necessary for admission into the Medical Corps of the United States Army have been again increased and the standard raised. These amended regulations took effect on July 1, 1904, and will, without doubt, not only increase the efficacy of the Service, but improve it materially in other ways. The immediate appointment of applicants for commissions, after successful physical and professional examinations, the latter embracing all subjects of medical education, has been discontinued. Hereafter all candidates will be subjected to a preliminary examination, and then, if successful, to a final or qualifying one, with a course of instruction at the Army Medical School at Washington intervening.

The preliminary examination now consists of a rigid inquiry into the physical qualifications of those seeking commissions. This, if successfully passed, is followed by a written examination in the following subjects: Mathematics (arithmetic, algebra, plane geometry), geography, history (especially of the United States), Latin grammar and the reading of easy Latin prose; English grammar, orthography and composition, anatomy, physiology, therapeutics and normal histology. The subjects in general education, the

circular states, are "an essential part of the examination and cannot under any circumstances be waived."

These preliminary examinations are conducted concurrently throughout the United States by bands of medical officers at convenient points. The questions submitted to all aspirants will be the same, thus insuring a thoroughly competitive and fair test, and all papers will be graded and criticized at the War Department, in Washington. Applicants who attain a general average of 80 per cent. will be employed as contract surgeons and ordered to the Army Medical School for instruction as candidates to the Medical Corps of the Army. If, however, the number of those successfully attaining the required average is in excess of the accommodations at the school, the requisite number will be selected according to their relative standing in the examination.

The course of instruction at the Army Medical School will, the authorities state, consist of lectures and practical work in subjects peculiarly appropriate to the duties which a medical officer is called upon to perform. While at this school the students will be held under military discipline and character and general deportment closely observed. All this is a step in the right direction, and nothing more seems possible unless indeed to require that all candidates must be college graduates, which will undoubtedly be eventually the case. Meanwhile the changes will unquestionably raise the status of the medical corps and strengthen the conjunction between "an officer and a gentleman" and render the terms synonymous. But we do not believe that this legislative action will play the part of the Guatemalan ants to the boll weevils, or that it will kill the microbe that lies at the roots of the trouble between the line and the staff, viz., the craving on the part of the latter for military titles and distinctions to which it has no moral right, either by tradition or association. For, while there is nothing in the training of the curriculum at West Point to prevent a graduate from becoming an excellent commissary officer, or a first-class paymaster, yet there is also nothing that could render him capable of assuming the duties of a surgeon, and the professions are as absolutely distinct in the Service as they are in civil life.

Now, the profession of medicine is an honorable estate. It certainly takes as many years of hard study, the possession of as much, if not more, intellect to become a good doctor as it does to become a good soldier, and the one profession

undoubtedly stands as high in the estimation of the community as the other. Why, then, should the representatives of the one desire to assume the appellations and designations of the other? That they do so desire is unquestionably the rule, and it is unfortunately one of those proverbially poor rules that does not work both ways. For, while the army surgeon, particularly of late years, is most insistent of his rank and most tenacious of any military designation that it may represent, such as captain and major, the case is yet to be reported where even a second lieutenant sought to infer that he belonged to the medical staff of the Army.

And this is the humiliating part of it to the general medical profession at large. That these men who have the brains and the assiduity to pass these examinations should by their claim to titles that belong exclusively by habit and tradition to another branch of the Service with which they have no connection, and tacitly admit that even if they are not absolutely ashamed of their profession, yet they *do* consider it inferior to that of their purely military associates. Surely peace has its victories as well as war, and in the future if young men are emulous of the laurel wreaths of the firing line and discontented with the bay leaves of the hospital tent, they had better enter the Academy at West Point in the beginning. Then they will become real "sure enough" generals and colonels and not majors and captains in the Medical Corps.

Some few years since there was a doctor who had been put on the retired list of the Army. He was an old surgeon and a good one, too; so good that besides his retired pay he had been rewarded by a grateful government with high honors and "a ribbon to pin on his breast" as a pledge to assure him thereof. Soon after that a modest sign appeared at his door bearing his name with the conventional M.D. of the ordinary physician's plate. Then he settled in a quiet little Canadian watering place for the summers and became a part of it.

Meeting by chance a physician who enjoys one of the largest practices in one of our Western cities, at the hotel, he entered into conversation with him and chatted some little time on medical topics. The next morning the physician happened to be on the front steps as the surgeon passed the hotel. Down the walk he came, head erect, shoulders squared and chest protruding, his neck confined in a starched stock and his feet firmly planted in cadence with the illusive strains

of an imaginary brass band. As he swept by he brought his cane to a marching salute, which was at once returned by the cheery "Good morning, Doctor," of the unconscious physician. The column of one instantly halted, faced to the right and in the first position of the soldier, with his little finger held lovingly in the rear of the seam of the pantaloons, he thundered out, "*Not Doctor, Sir; Colonel, Colonel, Colonel!*"

The physician was thunderstruck, but he grasped the situation. He instantly apologized on the grounds of the likeness of the speaker to a doctor with whom he had conversed on the previous evening and alluded to the sign which he said "was indicative of seeking medical practice and which did not have any of the earmarks of a d—d recruiting officer." The surgeon admitted that the sign was his, and then the physician, with all the incisiveness born of Boston, which was enhanced rather than tempered by the acquired breeziness of the West, proceeded to inform him what he and the profession at large thought of "a Judas that put his hand into the dish of medical patronage and then denied his Master."

Could anything be more ridiculous, unless it is the fact that when a foreign, world-celebrated physician called on a man who had once been Chief of the Bureau of Medicine and Surgery in the Navy Department—his butler reprovingly said when asked "if the Doctor was at home," "No, sah, the Admiral is not receiving to-day." Luckily these things right themselves when they have been sufficiently laughed at and ridiculed, but the army surgeon should be content with his own profession, which he has long led, as compared with the armies of other countries, and not seek a military position, which at the best would only cause him to be classed with that charmingly alluring, but distinctly hybrid individual, one "Captain Jinks, of the Horse Marines."

"BUTTON BUTTON."

ROBERT F. WEIR, speaking recently on the disadvantages of the Murphy button, said: "This remarkable ingenious contrivance has furthered the development of abdominal surgery more than any of the many hundred kindred devices which have been suggested. Without the courage which its facile employment and its generous assurance of success has given to surgeons, it would have taken many more years than have passed since its introduction to have accomplished what already has been done."

If this be true of the Murphy button, and the authority quoted stands among the highest in the world,—it must also, in a less degree, be true of the many minor and, in general, imitative instruments to which Dr. Weir referred. On the principle, however, that dogs have their day; irrespective entirely of the fact that fashion in surgery is quite as imperative as it is on the back of the fair sex (and entirely in accordance and in agreement with Dr. Weir's laudation of the Murphy button, has not the time come to inquire seriously into the question of its present position in the surgeon's armamentarium?

That there is no fair answer to this save an affirmative one, is vouchsafed in part by the broad minded attitude of the distinguished inventor of this button,—Dr. John B. Murphy. At the recent meeting of the American Medical Association in Atlantic City, in reply to Dr. Weir's criticisms of the button, Dr. Murphy said that more had been expected of the invention, more burdens had been cast upon it than he himself had ever intended or desired. He very freely admitted that it was open to strenuous objection. He did not deny that occasionally after performing gastro-enterostomy, the button fell into the stomach, and he delighted the audience, and Dr. Weir as well, by saying that the only time this accident had befallen him, had been when he had made use of the well-known Weir modification of his button by which a flange was so fitted as supposedly to prevent this catastrophe.

Within the past ten years the definite decision has taken firm root that it is unsurgical in the truest sense of the word to introduce non-absorbable materials into the tissues. It may be said with truth that Murphy's button does not technically fall within the pale of this decision, and although academically perhaps, from the standpoint that the inside of the gut is upon the outside of the stomach, nevertheless, from a practical viewpoint and clinically, when a man gets a button in his belly, or has one lodged for good in his intestine, the button is inside of him so far as his comfort goes.

It is perhaps easier to forecast the future of such a contrivance as the button by watching the history of other non-absorbable devices. Eight years ago, a great many of the so-called Phelps' woven wire mattress pads were introduced into the abdominal wall to repair its lack, in certain cases after the reduction of large herniæ. Although many of these pads froze, as it were, into place, through the kind agency of asepsis, they

never, without exception, save perhaps the one which proves the rule, proved to be either remedial of the lesion or comfortable to the patient. By the usual process of nature, who has at length forced upon us the fact that she abhors foreign bodies as well as vacua, they were one and all forced to the surface and were driven out through a sore and sinned against skin. Does any one now employ these pads? Is not the use of silver wire as a bone-suturing material, even, going utterly and entirely out of use? The conclusion is now self-evident that the patient might just as well be expected to wear permanently the external splints used to coapt a bone, as to endure the existence of permanent internal splints in the shape of silver wire.

The prognosis then for the life of the Murphy button, based upon an examination of the fate of other non-absorbables, is distinctly bad.

What prognosis is furnished by that most sensitive of all indicators, the *Zeitgeist*? Everywhere far and near, there is an indication that surgeons are seeking after something better than the button. It might be said that that was simply an indication of an effort at progress, but the extent, and persistent earnestness and variety of the search, indicate something more than that. Many of these attempted improvements on the button are too well known to deserve citation, but there is one which was presented before the recent meeting of the American Surgical Association at St. Louis, which deserves more than passing interest. This is not because of the probability that it will definitely supersede the button, even in part, but because its very ingeniousness shows the need for some suitable contrivance or method.

Dr. F. B. Harrington, of Boston, has devised an aluminum bobbin, which is constructed out of four separate segments of a circle. Little shoulders abut and when held tightly in position by a cat-gut strand, the ring is completely rigid. A convenient handle coupled to the ring serves to hold it during the period of its insertion. This ring has given, in the hands of its distinguished inventor, admirable results. It breaks up into four segments weighing but a few grams, each one of which has four rather sharp corners. They have been observed under the X-ray to be carried by the motor power of the stomach from the artificial opening to and through the pylorus.

Are sixteen points of possible danger preferable to the well tried but by no means infallible Murphy button?

Before this question can be answered from the

experience of many hundreds of operators as the delicacy and ingeniousness of the contrivance justifies that it should be, it is to be hoped that a more felicitous means of accomplishing what these non-absorbable means do so well, will have been devised by an equally certain but more innocuous absorbable material.

ECHOES AND NEWS.

NEW YORK.

Appointment of Dr. Norris.—At the meeting of the Board of Trustees, held on Wednesday, July 27, 1904, Dr. Charles Norris, of New York, was appointed Director of the Pathological Laboratories in the Department of Bellevue and Allied Hospitals, said appointment to date from October 1, 1904. Dr. Norris has been an active worker in pathology for a number of years. For the past two years he has been teaching in the Pathological Department of Columbia University. Bellevue and this city are fortunate in having obtained the services of so able a pathologist.

Appointment of Dr. Prentiss.—Dr. Henry Prentiss, instructor in practical anatomy in the Bellevue Medical College of this city, has been appointed Professor of Anatomy in the University of Iowa.

Rockefeller Institute Plans.—Plans have been filed for the new laboratory building to be erected on Exterior Street, east of Avenue A, for the Rockefeller Institute of Medical Research, of which Dr. William H. Welch, of Johns Hopkins University, is president, and Dr. S. Flexner, Resident Director. It is to be a five-story edifice, 136x60, with a façade of limestone and brick. It will be decorated with pilasters of brick, and have a porch entrance flanked with decorative columns for the support of electric lights. The first floor will be an assembly hall, with a library and study and directors' room. The upper floors will contain large general and special laboratories and research rooms. The fifth will have a dining hall and living quarters, and the roof a special operating room and quarters for the animals under examination. Adjoining the main building will be a two-story building for the animals used by the doctors, and powerhouse. The cost of the buildings is estimated at \$325,000.

The National Association of Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis, which was organized at Atlantic City on June 6, is to begin active work on Monday next. An office has been secured in the Associated Charities Building at Twenty-second Street and Fourth Avenue, and Mrs. Florence F. Colby has been elected assistant secretary to start the work. An executive secretary will be elected in September. The association promoters are starting out with the idea that at least \$50,000 can be raised yearly to carry on its crusade, which is to be mainly one of education. There is no idea of founding any sanitarium, hospital or dispensary for the treatment of the disease. It is not likely that a laboratory even will be instituted at first, although that may be done later. The work planned for the first year at least is the collection and dissemination of information of every sort touching the disease. Statistics will be collected and pressed on the attention of municipal bodies and institutions in order to get them to make scientific warfare against the spread of the infection. The primary purpose is to make the association headquarters a clearing house for tuberculosis lore. The formation of local associations and

committees will also be urged and assisted in every possible way. It is probable that a special journal devoted to tuberculosis will be published; but this point is not quite decided. One of the first definite enterprises will be the publication of a Tuberculosis Directory. This will be done in cooperation with the Charity Organization Society, whose tuberculosis statistician, Miss Lillian Brandt, has already in hand a great deal of the necessary information, including particulars of 125 hospitals and sanatoria in this country and Canada specially equipped for the treatment of tuberculosis. The crusade promises to be an active one, and all physicians in the country can greatly aid the National Society in its propaganda.

Reduction in Infant Mortality.—Thanks to the efforts of the summer corps of doctors and nurses, aided by more favorable weather, infant mortality decreased last week. From a total of 565 deaths the week before from diarrheal diseases, of which 523 were children under two years, the death list from the same causes in the week ended Saturday, July 30, dropped to 426, of which 388 were children under two years. With this decrease the death rate from all causes came down from 23.46 to 20.65, the lowest is seven weeks. When the deaths among the children became so appalling in number warnings were sent out and sanitary laws enforced with renewed vigilance by the city Health Department. The summer corps searched out mothers of babies, ill or well, in the tenements and preached the gospel of boiled water, pure milk, proper clothing, fresh air and all the precautions that make for health. The summer corps visited 5,130 houses, sheltering 26,963 families, last week, and treated 362 ill children. The corps distributed 8,636 circulars, giving directions to mothers of young babies, and gave out 580 milk tickets and examined 2,852 children for the St. John's Guild boats. Not a quarter of the guild tickets were used, however. The mothers retain their fear of excursion boats caused by the fate of the Slo-cum excursionists early in the summer, and even the enticing prospect of a free ride and the recommendation and assurance of the doctor are not sufficient to induce them to risk themselves and their children aboard. As showing that the tenement conditions are largely responsible for the high mortality of children the deaths from diarrheal diseases are confined almost wholly to Manhattan and Brooklyn, and to that part of each borough where the congestion is greatest and especially where the foreign element is most conspicuous.

PHILADELPHIA.

Beriberi in Port.—When the sugar-laden bark Foohing Suey arrived at the State quarantine station at Marcus Hook the past week it was found that eight cases of beriberi were on board. One sailor had died of the disease at sea. After the sick men were removed, the vessel was fumigated for twenty-four hours and then allowed to come to the city. Some criticism has been made regarding the action of the government physicians at Reedy Island, who passed the ship without subjecting it to fumigation.

Heads of Quarantined Houses Warned.—A circular issued by the Bureau of Health directs the heads of quarantined houses to see that all bottles or other vessels that have contained milk be disinfected by or under the supervision of the bureau before they are removed from the place. Milk dealers are also notified not to collect such bottles until properly prepared. This is to prevent the spread of contagious diseases from house to house.

State Examinations Unsatisfactory.—The President of the State Board of Medical Examiners is quoted

as saying that the results of the recent examination of 376 applicants for State license are highly unsatisfactory. Detailed report will not be made until after the meeting of the board on August 8, at which time some action may be taken to better existing conditions. The suggestion that the charters of certain medical institutions be revoked is not among the impossibilities.

New Pure Food Law Being Prepared.—Legislative acts being prepared for introduction will give the Department of Health of Philadelphia specific power to stop the sale of adulterated and preserved foods. At present this is impossible, and many dealers escape. State Commissioner Warren is in favor of imprisonment for men convicted a second time of adulterating foods, the first offense having been punished by a fine.

Smallpox and Vaccination.—Director Martin has issued a statement in which he declares that smallpox no longer exists in this city. Among other things, he says: "After a three years' struggle, the results of which have been extremely slow in appearing, the smallpox epidemic, which has cost Philadelphia thousands of lives and millions of dollars, has reached an end. It should never have occurred and could have been avoided with absolute certainty had the community, as a whole, been properly protected by vaccination. The responsibility of preventing a recurrent epidemic rests with the Health Department and the medical profession of Philadelphia." After asking for the vaccination of all persons not properly protected he states: "We consider as evidence of proper protection against smallpox in persons under twelve years of age the presence of at least one typical vaccination scar. In persons more than twelve years of age, the presence of at least two typical scars, made at different times, or the evidence of successful vaccination practised within five years."

CHICAGO.

Allegations of Cruelty Baseless.—After examining fifty employees of the Northern Hospital for the Insane, the State Board of Charities, represented by a majority of its members, voted that the charges of abuse and cruelty preferred by the Elgin Trades Council in its letter to Governor Yates were utterly baseless. The board is charged, however, with not giving the members of the Trades Council, who have made affidavit to special cases of cruelty, proper opportunity to appear. The board has what purported to be the original charges, and made an investigation among the employees of the asylum to discover if any attendant, nurse, physician, or other official, had committed any of the brutal deeds set forth in the accusing document, and each of the witnesses asserted there could be no possible premises upon which to build tales of inhumanity.

Work of Nurse Association.—The report of the Visiting Nurse Association for the month of July shows that 798 patients were attended and 3,679 visits made. The principal cases treated were consumption, typhoid fever, and children's diseases. The work of the Association is greatly hampered by lack of funds, more nurses being needed at once.

New Building for Cripples.—Mrs. R. H. McElwee, of Lake Forest (Illinois), has, in charity's cause, donated a new building to the Home for Destitute Crippled Children. The gift will be in the form of an extension to the present structure, and will cost from \$30,000 to \$40,000. The work of construction will soon begin. The institution as it stands affords accommodation for 35 or 40 crippled little ones, but even with that limited number its wards are overcrowded. The new wing will house 80 more and will be devoted largely to orthopedic cases.

The Murder Habit.—Statistics of murders which have just been compiled in Italy show that while in France the annual rate is one murder to every 100,000 inhabitants, in Northern Italy it is 4, in the middle provinces 24, and in the southern provinces, including Naples and Sicily, it is 30. Last year the Cook County (Illinois) Coroner held inquests in 118 cases of homicide, of which only 11 were reported by him as justifiable. This is at the rate of about 6 per every 100,000 of the population. Chicago can hardly take pride in the fact that her murder record is five times better than that of Naples and Sicily. On the contrary, she can feel nothing but shame that it is six times worse than that of France. Probably the local record for the current year will be better than that of last year, for the numerous instances of severe penalties inflicted by juries during the first six months of the year cannot fail to have their effect. Nevertheless, the need of improvement will still be marked, and improvement can come only as the community places a higher value on human life and insists that all public officials take the most vigorous methods to bring all murderers to justice.

Changes in Faculty.—Professors Orville E. Brown, Elias P. Lyon, and Chas. H. Neilson, of the Department of Physiology of the University of Chicago, have resigned to accept similar positions on the faculty of the University of St. Louis.

Will of Dr. N. S. Davis.—The will of the late Dr. N. S. Davis, father of the American Medical Association, disposes of an estate valued at \$39,000, of which \$25,000 is real estate. The homestead is bequeathed to his widow, his library to his son, and a perpetual scholarship in Northwestern University to his grandson, Frank H. Davis.

Opening of Tuberculosis Hospital.—The new hospital for the treatment of consumptives at Dunning was turned over to the officials recently, and a little later all the patients in the old building were transferred. The new hospital consists of five cottages, and will accommodate 160 patients. The old building is to be used as a hospital for the sick insane.

GENERAL.

Fate of the Substitutor in New Orleans.—Recent developments in New Orleans show that the owners of a certain company operating under the name of the German Chemical Company have been arrested and arraigned under charges of obtaining money under false pretenses by attempting to sell modern chemicals as pure when they were found to be gross adulterations. Phenacetin was found to be 65 per cent. acetanilid and 35 per cent. phenacetin, and other products treated in like manner. We might hope for more strict regulations in other parts of the country if the physician is to have any assurance of the real quality of his wares.

Koch's Successor.—Professor Gaffky, who was appointed the successor of Koch as director of the Institute for Infectious Diseases in Berlin at Professor Koch's desire, was associated with his predecessor in 1883-84 in the cholera expedition sent by the German Government to Egypt and India, and helped him prepare the report thereon. In 1888 he became professor of hygiene at the University of Giessen, and during the Hamburg cholera epidemic, four years later, he was engaged by that city as expert adviser. In 1897 he was at the head of the dangerous expedition sent to India by the Government to study the plague. Gaffky was born at Hanover, in 1850, and began his career as military surgeon in the Prussian army.

Liability for Medical Attention—"Dowieism."—The Supreme Court of Indiana recently affirmed the de-

cision on the "Christian Science case" in which the Clinton County court discharged Joseph Chenoweth from a prosecution for involuntary manslaughter, in allowing his baby to die of acute pneumonia without calling a physician. The baby was nine months old, and had whooping-cough. The disease finally became acute and Chenoweth called in an elder, who "anointed the child with oil and prayed for the healing thereof." He also communicated with one Dowie, at Chicago, and caused him to pray for the child. His neighbors urged that a physician be called in, but he refused to have a physician or to give the baby medicine, because he believed in "Divine healing," and offered and cited the "Word of God" as his justification for the refusal. Chenoweth was able to hire a physician had he desired one. The physicians who were called as witnesses against Chenoweth testified that so young a baby would probably have died if a physician had been called after bronchial pneumonia developed, but that its life could probably have been prolonged. The trial judge held that there was no testimony that the father's neglect caused or even materially hastened death. The Supreme Court really decides nothing except that the appeal was not so presented that it could decide the important public question which the State sought to have reviewed, and thereby determine and settle in this State the law applicable to cases like the one at bar. But Judge Jordan, speaking for the court, quotes with approval from cases in New York, Canada and England, in which parents have been convicted of manslaughter for neglecting sick babies, where the courts held that religious belief was no excuse for not providing medical care and attention. The decision by the highest court of British Columbia, where the father, a "Zionite," refused to call a physician for his children when he knew they had diphtheria, is stated to the effect that the person who fails to provide necessary medical attention and remedies is criminally responsible and that a conscientious belief that it is against the teachings of the Bible is no defense. Judge Jordan concludes that the question involved is one of public importance, and if there is an absence of law in this State in respect to a case like this, the legislature should promptly deal with the matter by proper legislation.

Health Work in the Philippines.—The work of the Bureau of Government Laboratories of the Philippine Islands, as shown by reports received at the Bureau of Insular Affairs, War Department, covers a vast amount of interesting and useful work. A new building, adapted to the needs of the bureau, is now about completed. It will greatly increase its usefulness and will bring the scientific work of the insular government practically under one roof and thus allow the different branches of the work to be mutually helpful. Provision has been made for housing the branches of chemistry, bacteriology, pathology, botany and entomology and for preparing prophylactic and curative serums. An ingenious method has been employed for securing an adequate gas supply. Oriental coals are deficient in gas producing qualities, and importations from Europe or America would be entirely too expensive for the purpose, and even gasoline, which is sometimes used for the purpose, was found to be unsatisfactory. The bureau, therefore, adopted the plan of preparing gas from cocoanut oil, a native product. Strong castiron retorts are brought to a red heat in furnaces and the cocoanut oil is then slowly fed into them, thus producing a very high quality of illuminating gas, free from smoke and tar. The struggle waged by the bureau against rinderpest, which threatened to sweep the islands of draught animals, was eminently suc-

cessful, and the veterinarians now have a herd of about seventy-five animals in their rinderpest serum herd for the purpose of furnishing a serum with which to inoculate non-immune herds. The demand for vaccine virus has also been very great, for until the advent of the Americans no systematic effort had ever been made to vaccinate the people of the islands, and smallpox, like the poor, was always present. A large number of calves were purchased for the purpose of preparing the virus, and then sold to stock growers. The laboratory reports that it never found a case of tuberculosis when examining calves to be employed for the purpose of cultivating the vaccine virus. A plague prophylactic has also been furnished to the Board of Health in sufficient quantities, and its intelligent employment has brought down the plague cases to such a degree that the islands are now practically free from this dread disease. The cholera epidemic, which began early in 1902, threw such a large burden of routine work on the laboratory that it interfered with much original investigation undertaken by its scientists. The biological laboratory is also investigating human diseases and has in preparation a work on a method of protective inoculation against Asiatic cholera and on amœbic dysentery. The Philippine commission, desiring that the laboratory be of the greatest possible economic benefit to the people of the islands, allows the general public, for reasonable and fixed charges, to secure from the bureau analytical and diagnostic work. As a result, both the public and other branches of the Government have obtained analytical results of all kinds and of the highest scientific accuracy. Fifteen bulletins have been published by the laboratory on medical, veterinary and botanical subjects, some of which have excited wide attention. On the whole, the record of the first year's work of the Government laboratories is one that reflects credit on the Government and the men who have devoted themselves to scientific research.

American Medical Editors' Association.—The thirty-fifth annual meeting of the American Medical Editors' Association, held at Atlantic City in June, 1904, was one of the most successful in its history. The many papers presented, as well as the numerous applications received for membership, is possibly the best indication of the interest displayed in the Society.

Among the interesting papers read and thoroughly discussed were: "Proprietary and Patent Medicines," Harold N. Moyer, Chicago, Ill.; "Military Medical Journalism of the Present Day," Major J. Evelyn Pilcher, Carlisle, Pa.; "Sundown Journalism," T. D. Crothers, Hartford, Conn.; "Medical Illustrations," H. V. Wurde-mann, Milwaukee, Wis.; "Medical Journalism of the Pacific Coast," Winslow Anderson, San Francisco, Cal.; "The Medical Press vs. The Modern Plague," William Porter, St. Louis, Mo.; "Reading Notices," W. C. Abbott, Chicago, Ill.; "Imitation Journalism," H. Waldo Coe.

Following an animated discussion of Dr. Porter's article relative to the use of patent nostrums, the following resolution, endorsing the action of Mr. Bok, editor of the *Ladies' Home Journal*, was favorably acted upon: *Whereas*, The public is, and long has been, suffering from the use of nostrums, and from the misuses of medicines; and, *Whereas*, the medical profession and press have endeavored by every means in their power to instruct the laity upon the subject; and, *Whereas*, some journalists either do not understand the true situation, or find it to their pecuniary gain to favor the use of nostrums and pander to the greed of their manufacturers at the expense of the health or even the lives of their dupes among the people; and, *Whereas*,

the eminent editor of the *Ladies' Home Journal*, Mr. Edward Bok, in an able and vigorous editorial on page 18 of the May number of that journal, laid the truth of the matter before his readers, thus aiding in the work of warning and educating and conserving the health and welfare of the public; be it

Resolved, That the American Medical Editors' Association approves and commends Mr. Bok for the intelligent, honest, fearless and well-grounded position he has taken, which has been thoroughly appreciated by us and by the medical profession generally. *Resolved*, That a copy of these resolutions be spread upon the minutes of this meeting, be transmitted to Mr. Bok, and be published in the medical journals throughout the country.

Dr. Porter presented the following resolution bearing upon the death of Dr. I. N. Love, an ex-president of the American Medical Editors' Association:

Resolved, That the members of the American Medical Editors' Association, while mourning the decease of Dr. I. N. Love in the zenith of his manhood and opportunities for usefulness, remember and cherish the recollection of all in his most attractive individuality that made his record so large a part of the history of this Association. *Resolved*, That a large page of our record books be set apart for the resolutions and that a copy be sent with our truest sympathy to the members of his family.

The following officers for the coming year were elected: President, Harold N. Moyer, Chicago, Ill.; First Vice-President, C. Evelyn Pilcher, Carlisle, Pa.; Second Vice-President, O. F. Ball, St. Louis, Mo.; Secretary and Treasurer, J. MacDonald, Jr., New York; the Executive Committee, C. E. de M. Sajous, chairman; John Punton, W. A. Young, W. C. Abbott, H. M. Simmons, C. F. Taylor and Charles Wood Fassett.

Hypnotism and Drunkenness.—At a recent meeting of the Society of Hypnology and Psychology in Paris, as reported by the *Evening Post*, an interesting report was read from Dr. Korovine, of the Moscow Asylum for Inebriates, where experiments for the cure of drunkenness by hypnotic suggestion have been carried out, upon a considerable scale, for three years. Dr. Korovine claims 22 per cent. of radical cures out of some 300 patients. He says that out of 323 patients hypnotized 84.4 per cent. did not drink any alcohol for a week, 60.2 per cent. abstained for two weeks, 33.8 per cent. for three weeks, 27.7 per cent. for more than a month, but only 3.1 per cent. for the whole time of the treatment—that is to say, for six months. He thinks that in more serious cases hypnotic suggestion to be effective must be associated with indoor treatment under restraint. Commenting on these facts, Dr. Berillon of Paris explained that when drunkards ask to be hypnotized they are generally very amenable to the influence of suggestion, but often they suddenly change and it is no longer possible to hypnotize them. In that case they have been drinking, and it is necessary to wait until they are quite sober and to treat them fasting. It is said that Dr. Forel, of the Zurich Lunatic Asylum, one of the best hypnotic authorities in Europe, no longer directs his suggestions against the drink itself, but against the habits and companions of the drunkard. He holds that it is not of much use trying to prevent a dipsomaniac from drinking until a radical change has been effected in his social surroundings.

OBITUARY.

DR. ROMEO F. CHABERT, one of the oldest physicians in Hudson County, New Jersey, and for twenty years a property holder and summer resident of Asbury Park,

died late last Monday at his summer home, on Seventh avenue, Asbury Park. He was seventy-six years old, and for forty-eight years had practised medicine and surgery in Hoboken. He was a member of the New Jersey State Medical Society, the founder and consulting surgeon of St. Mary's Hospital, Hoboken; consulting physician of the Bayonne Hospital, and for many years a member of the Board of Managers of the State Hospital for the Insane at Morris Plains.

CORRESPONDENCE.

OUR PARIS LETTER.

THE QUESTION OF HEALTHY DWELLINGS—A SUPERVISORY LAW IN FRANCE—EXCESSIVE OVERCROWDING OF BARRACK-LIKE TENEMENTS—CHEAP BUILDING SOCIETIES ON THE INCREASE—GERMANY FAR AHEAD IN THIS MATTER, OWING TO PROTECTION OF THE STATE—ROTHSCHILDS' BENEFICENT PLANS.

PARIS, FRANCE, July 21.

THE donation of ten millions of francs that has lately been made by the Brothers Rothschild with a view to bettering the conditions of the working classes by the creation of cheap and healthy dwellings, as well as the inauguration of the first building constructed by the "Society of Hygienic and Cheap Dwellings," have drawn public attention in France to the interesting problem of hygiene in the houses of the poor.

In other countries, as, for example, America, England, Germany, legislation rules the condition of the habitations of the working classes; in England rigorous laws permit the pulling down and expropriation of whole quarters when that is necessary for public salubrity. In Germany certain municipalities, as at Ulm, Stuttgart, Carlsruhe, build model dwellings for workmen, whereas in France the initiative has not been taken by the public authorities, and the only effort of the legislator has merely been a law or bill of encouragement, dating from 1894. This law oversees in each district, or department, the formation of local committees whose mission it is to encourage the construction of salubrious houses either for private persons or for societies, with a view to letting them out to workmen or employees hiring on the proceeds of their labor or on their wages. A committee composed of several deputies and senators, members of the "French Institute," presided over by the Minister of Commerce, and with Mr. Jules Siegfried, a former cabinet minister, and Eugene Gouin, Senator, as vice-presidents, examines the work done, inspires the work, and draws up a yearly report to the President of the Republic.

Besides this organ of official encouragement there is another, but due to private initiative, the French Society of Cheap Dwellings, formed after the Congress of 1889, and whose honorary president is Mr. Siegfried. The building, inaugurated in the Rue de Tretaigne at Monmartre, is a five-storied one and includes twenty small flats, each containing three rooms besides a kitchen and water closet. On the ground floor there is a library and a general store. Everything pertaining to modern hygiene is observed in the building; thus there is no useless decoration, the floors are not parquetry, the moldings are rounded, the walls washable. It is on this model that other buildings are to be constructed, which will serve to lower the terrible mortality incident to its enormous, overcrowded and barrack-like houses in which workmen and their families take their repose after their day's work. The mortality among this class sometimes reaches the high proportion of 80 per 1,000 per year. That is the figure stated by Mr. Siegfried,

who so regrets the want of even elementary comfort so necessary to both town and country populations.

To combat this state of things two solutions are proposed. The erection of new, low-rented houses, such as that of which we have just spoken, or else the adoption of Mr. Cheysson's plan, the cleansing and purifying of old houses, which would be less expensive. The movement in favor of house hygiene dates back about fifty years and was due to Prince Albert in England and to Mr. Jean Dolfus, of Mulhouse, in France, but it has only become important since 1885, owing to the efforts of Mr. Jules Siegfried, of George Picot, the perpetual secretary of the Academy of Moral and Political Sciences, and of Eugene Cheysson of the Institute, who showed up the existing peril, as well as the duty to be performed. In addition to the committees which favored by the law, there are 109 societies devoted to the subject of the erection of economical dwellings, of which fifty-six are coöperative and fifty-one civil societies. Moreover, in France, cheap-building societies have offices in seventy-seven towns. There are twenty-one societies in Paris, three at Douai and Marseilles, two at Calais, Rouen, Tours, Amiens, Lyons, Anjers, Maisons, Alport and Algiers. All have nearly the same aim, viz., the purchase of ground and erection of cheap dwellings either self-contained or collective. Unfortunately the existing building societies have, for the most part, been founded with insufficient funds, while in England the question has been considered as a simple business affair and the English Mutual Aid Societies, very rich, have found there a convenient means of placing their capital, while in Germany (besides the philanthropic foundations which exist there as in England) special resources are available for economical dwellings, derived from obligatory insurance. In France this work has had to be protected by law. Laws of 1894 and 1895 granted to these enterprises certain advantages in the form of fiscal indemnity and lowering of taxes, and again, savings banks have been authorized to employ their personal revenue and the fifth of their fortune in building or acquiring cheap dwelling houses.

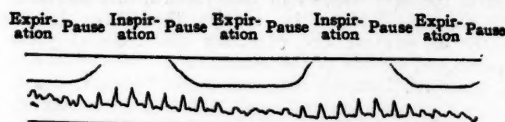
Private initiative and, in particular, that of the Civil Society of Cheap Buildings has, with this aim in view, founded societies of credit able to negotiate with building societies or to guarantee them at the "Caisse des Depots et Consignations." The foundation of Messrs. Alphonse, Edmond and Gustave de Rothschild, which in France will be the pendant of the Peabody Foundation in England, will, by means of buildings that are to be erected, be of efficacious help to workmen. This endowment of ten millions is to be employed in building houses with cheap flats for the Parisian population. The revenues are to be employed to give grants to those initiatives of special interest to the working classes.

REMARKABLE PULSE TRACING.

To the Editor of the MEDICAL NEWS:

DEAR SIR: I enclose a pulse tracing showing a rhythm to which I can find no reference in the literature at my disposal. As the tracing shows, the pulse wave becomes markedly smaller during expiration and the post-expiratory pause. It is thus a phenomenon, the opposite to the paradoxical pulse, and in lieu of a better term, I have applied the designation, "The anti-paradoxical pulse" to what it represents. It occurred in a patient suffering from an aneurism of the innominate artery and the diminution of the pulse wave was brought about by the collapsing chest pressing upon the aneurismal sac during expiration. When admitted to hospital this rhythm was very evident to the finger

during ordinary breathing. As his heart gathered strength from the rest, it was only apparent during deep respiration and later disappeared entirely. The



Tracing of right radial pulse during deep respiration. Patient holding his breath both at end of inspiration and of expiration.

left radial and left carotid pulses were regular. It seems rational to suppose that such a pulse might be present in similar cases of innominate aneurism associated with a weakened heart.

C. M. COOPER, M.B., M.R.C.S.

SAN FRANCISCO.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.¹

Seventy-second Annual Meeting, Held at Oxford, England, July 26, 27, 28 and 29, 1904.

FIRST DAY.

The Oxford Medical School.—The history of the origin and development of the Oxford Medical School was made the subject of the address of the President, William Collier, M.D., of Oxford. It was in 1868, he said, that the last meeting of the association had been held at Oxford, and the desire to compare the status of then and now had suggested to him his topic.

Twenty-four years ago, in 1880, he said, when this Association held its annual meeting at Cambridge, the then President, Sir George Humphry, in one of the most eloquent and forcible addresses ever given to the Association, used these words:

"Has there not through the whole period of our academic history been enacted a divorce, a most unnatural divorce, between body and mind—that is to say, between the nurturers of the one and the cultivators of the other? Has not Cambridge more than any university, with perhaps one exception, banished medicine from its walls and the men of medicine from its schools? Can good reason be shown why medicine has been allowed to profit so little by the accumulated liberality of many generations, which has given such impulse to art and literature, to classics and theology, mathematics and philosophy, to astronomy and logic?"

He pointed out that originally the Faculty of Medicine had been placed on par with those of Divinity and Law, and the provisions for teaching and graduating in all these faculties had been made alike.

A little later Humphry gave what was probably the correct answer to his inquiry. For he showed that the College of Physicians in London, founded by the influence of Linacre, with the privilege of licensing practitioners throughout the kingdom, became in time the successful rival of the old Universities of Oxford and Cambridge. As London grew in size and importance the influence of its college increased, and in a short time little was left of the universities beyond the function of giving a preliminary training to the few who could avail themselves of it. In no other European country are there competing corporations similar to our Colleges of Physicians and Surgeons, having power to grant licences to practise. In other countries the universities are the only avenues to medicine.

¹ From advance sheets of the *British Medical Journal*, by courtesy of the editors.

Revival of a Medical School in Oxford.—Why should not the Universities of Oxford and Cambridge take their proper share in the training and education of medical students? This question had for some years previously occupied the thoughts and minds of many earnest men at both universities. Science had already obtained a sound footing. At Cambridge the Honor School of Natural Science had been established as far back as 1851, at Oxford in 1853, while at Oxford the University Museum—the center for scientific work—in which our Sectional meetings will be held this week, had been built, thanks very largely to the influence and exertions of the late Sir Henry Acland.

So long ago as January 5, 1878, an anonymous correspondent, signing himself "A Member of Convocation," wrote a long and bitter letter complaining of the way in which the study of medicine was entirely overlooked at Oxford. As a medical school Oxford, he declared, had within the preceding quarter of a century entirely ceased to exist. No teaching in the preliminary subjects of medicine was being given, and the medical faculty had recently lost even its nominal existence, and now appeared under the head of physical science and mathematics. He attributed this decadence largely to the influence of the then Regius Professor of Medicine, and to the Professor of Physiology. They were ably defended by several of their old students, who showed how much the teaching of natural science at Oxford owed to their personal efforts. The controversy on medical teaching at Oxford was carried on with vigor for many months by many writers, and while all, or nearly all, were in favor of making adequate provision for the teaching of anatomy and physiology at the university, some were most anxious to establish a complete medical school, declaring that in many of the most illustrious medical schools in Germany the hospital population was not larger than it was at Oxford.

A little later another petition was drafted on very similar lines by an entirely different body of men, and was sent to the commissioners who were at the time engaged in investigating the affairs of the university.

In November, 1882, Professor Burdon Sanderson was appointed to the newly founded Chair of Human Physiology and Histology at Oxford, a first step towards the establishment of medical education in Oxford on modern lines.

Development.—Having elected a professor of physiology, it was found necessary to build laboratories and class rooms for the purpose of teaching, and on June 5, 1883, the members of Convocation were asked to grant a sum of £10,000 for this purpose. The resolution met with keen opposition, partly on the ground that vivisection would be practised, and partly on the ground that the expenses were beyond the existing resources of the university. The resolution was carried by three votes.

In the same year (1885), he said, the Faculty of Medicine, which had been merged in natural science, was recreated, and Mr. Arthur Thomson, Senior Demonstrator in Anatomy in Edinburgh University, was elected Lecturer in Anatomy. It needed a man of resolution and fixed purpose to cope with the situation, for when he took up his work in Oxford Mr. Thomson found himself with three students and a small wooden shed in which to teach anatomy—a great contrast to his Edinburgh experience. A sum of money was immediately collected by members of the university interested in the development of the school, and a small temporary lecture room and a dissecting room were built. In the following year the curators of the University Chest built, at a cost of £500, a temporary iron-

roofed building with rather more accommodation. By 1891 the lecturer's class had grown from 3 to 67. A sum of £7,000 was now asked and obtained from the university to provide a permanent home for the teaching of human anatomy, and the present excellent building, in which the Section of Anatomy will be held, was built. In a year or two, largely owing to the success of Mr. Thomson as a teacher, the lectureship was converted into a professorship. In 1886 a most important statute was passed, by which students in natural science were exempted from the first public examination in classics known as Moderations. This measure enabled students of medicine after passing their preliminary examination known as Responsions, which might be passed before coming into residence, to devote their first year in Oxford to the study of the preliminary subjects in natural science, and so another and most important barrier to the establishment of a medical school disappeared. In 1891 Sir Henry Acland, who had always interested himself in the study of pathology and bacteriology, inaugurated a new department in bacteriology, and appointed, first, Dr. Menge, of Munich, to take charge of it, and later, in turn, Dr. Bertram Hunt and Dr. Ritchie.

In 1899 a generous medical student, Mr. Ewan Frazer, offered the university a sum of £5,000 toward the expenses of building a pathological laboratory. This sum was accepted, the university at the same time agreeing to supplement it with another £5,000, and to make an annual grant of £250 for upkeep. In October, 1901, the new Pathological Laboratory was opened.

Influence of the School.—For some years a considerable number of medical graduates have been passing forth into the larger world after spending three or four of the most impressionable years of their lives at one or other of the two universities. Have they benefited? The majority of these graduates if appealed to would declare with no uncertain voice that they recognized fully that their mixing with men of their own age, who were taking up other subjects for their life-work, and interesting themselves in other mental pursuits, had done much to widen their own general culture, and to develop in them interests outside their own professional work. Has the university benefited? Yes. The establishment of the medical school on a modern basis has introduced into the university a body of students starting their university career with a definite object in view, and compelled by the very nature of the case to lead a steady, strenuous life, for no student can hope to pass his professional examinations without a due amount of steady work.

But to his mind the greatest advantage to be noted has been the influence the university student has had on the other medical students of the great metropolitan schools. All of us are familiar with the Bob Sawyer type of medical student as depicted by Charles Dickens—that is to say, all are familiar with him in fiction—but as a living type he has for many years ceased to exist. Many can remember the time when any more than usually disgraceful outbreak of rowdiness in London was invariably attributed, rightly or wrongly, to medical students. But this is a matter of the past. The medical student of a quarter of a century ago undoubtedly bore a very bad character in the eyes of the public; he no longer does so. Why the change? Largely because of the influence of the university graduates who have come among them.

Earlier Benefactors.—From Oxford of to-day to Oxford of the past, a few of Oxford's greatest men, members of the profession, who have been associated with the university, were mentioned.

Linacre, who at the age of twenty-four, in 1484, was elected a Fellow of All Souls, and was incorporated a D.M. of the University on his Padua degree, is first to be thought of. While at Oxford he seems to have devoted most of his time to giving lectures in physic and to the teaching of Greek. Not only was he a profound scholar and a successful physician, but he was also a member of the clerical profession—indeed, the last few years of his life were entirely devoted to clerical work. He bequeathed considerable sums of money to both Oxford and Cambridge for the purpose of encouraging the teachers of medicine. The Linacre Professorship of Comparative Anatomy is a reminder of one of our oldest and most distinguished benefactors. It was mainly due to Linacre's efforts that the Royal College of Physicians of London was founded in 1518, he being elected the first president. It was probably due to his influence, too, that a statute was passed in Henry VIII's reign that no person should practise as a physician or surgeon until examined and approved by the bishop of the diocese in which he lived, who was to call to his assistance expert persons in the Faculty.

For some years Harvey, the discoverer of the circulation of the blood, dwelt at Oxford, where he worked at anatomy and made many dissections. He was incorporated a D.M. of the University, and in 1645 by royal mandate was made Warden of Merton College, but did not retain the post long, as the following year, after the surrender of the city to the Parliamentarians, he returned to London.

It was while Harvey was at Oxford that another great anatomist who studied under Harvey was preparing himself for future fame—Thomas Willis, well known to all by his description of the anatomy of the brain, and more particularly by the circle of Willis. Willis was born of Oxfordshire parents within a few miles of our city, and for many years practised his profession in a house opposite Merton College.

Associated with Willis was Christopher Wren, the architect of St. Paul's Cathedral. Born in 1632, Wren left school at the age of fourteen, and was engaged by Sir Charles Scarborough to act as his assistant and demonstrator at his lectures on anatomy at Surgeon's Hall, London. Three years later, at the age of seventeen, he was entered as a fellow-commoner at Wadham, and at twenty-one was made a Fellow of All Souls, and at twenty-eight Savilian Professor of Astronomy. It was while at All Souls that he made elaborate drawings to illustrate Dr. Willis's work on the anatomy of the brain. In 1679 he made experiments which led him to the invention of a method for the transfusion of blood from one animal to another. It was at the age of about thirty he began to follow the profession of architecture, and one of his first works was this Sheldonian Theater, the first stone of which was laid in 1664 and completed five years later. At the age of nine he was capable of writing an elegant Latin letter to his father, but it was science and mathematics that attracted him. A splendid mathematician, a great experimentalist, always working out the most difficult scientific problems, a distinguished astronomer, and a famous architect all combined in one. No wonder that Barrow described him as a boy a prodigy, as a man a miracle, nay, even something superhuman. He died aged ninety-one years.

The greatest benefactor of the university was John Radcliffe, who was born in 1650 and died in 1714. For nine years he practised as a physician in Oxford, and we are told that he incurred the anger of the older practitioners in the town because he paid so little regard to professional conventionalities. In 1684 he moved to London, and his apothecary tells that he had scarcely

been in town a year before he was earning more than 20 guineas a day. His lively conversation, it was said, soon made him the most popular physician in London. He succeeded more by his ready wit than his learning, for while at Oxford his library consisted of some phials, a skeleton, and a herbal. In 1692 he lost some £5,000 owing to the capture by the French of a ship in which he was interested. When his friends condoled with him he replied that it did not matter, for he had only to go up 250 pairs of stairs to make himself whole again. If this be true the physicians' fees in those days would seem to have been very much higher than at present. At any rate, his philosophical way of putting up with a financial loss was admirable—a little more work would put him right again. During his life he gave largely to his old college and to several charities, and at his death he left by will his Yorkshire estate to the Masters and Fellows of University College for ever, to be held in trust for the founding of two Radcliffe traveling Fellowships, the overplus being paid for the purpose of buying perpetual advowsons for the college. In addition he left £5,000 for the enlargement of the college and £40,000 for the building of a medical library. With money derived from his estates two other buildings were erected in this city by his trustees, the Radcliffe Infirmary and the Radcliffe Astronomical Observatory, and money was further granted towards the building of the College of Physicians in London.

Thomas Sydenham (1624-89), who has always been regarded as one of the chief masters of English medicine, was also connected with the university. His career at Oxford was certainly a checkered one. At the age of eighteen he entered as a fellow commoner at Magdalen; a few months later he joined the Parliamentary forces and fought against the Royalists; four years later, 1646, when Oxford and the other royal garrisons surrendered, he resigned his commission, and was on his way to Oxford when he chanced to meet with Dr. Thomas Coxe, who was attending his brother, and who persuaded him to take up medicine. He then joined Wadham College, and the following year was elected to a Fellowship at All Souls. In 1648 he obtained his degree of B.M. in a very irregular manner, as he was created B.M. by command of the then Chancellor of the University without having taken a degree in Arts and with little knowledge of medicine. For a time he studied at Oxford under the Regius Professor of Medicine, whose lectures, we are told, consisted merely in reading the ancient medical classics. Again he joined the army, and became a captain of a troop of Parliamentary Horse. On one occasion he was left on the field of battle among the dead, and lost, as he tells us, a great deal of blood. On another occasion he nearly lost his life at the hands of a drunken soldier, who broke into his bedroom at night and discharged a pistol at his breast. Fortunately the soldier's left hand was interposed and was shattered by the bullet, while Sydenham escaped unhurt. Having again retired from the army he studied medicine at Montpellier, and a year or two later began practice in London. In 1676, at the age of fifty-two, he incorporated as M.B. at Pembroke College, Cambridge, on his Oxford degree, and immediately took the M.D. of that university. It is supposed there were political reasons for his not taking the Oxford degree. By his methods of studying disease and by his masterly description of diseases Sydenham is admitted to have made an epoch in medical science. In 1894 a life-sized statue of Sydenham was presented to the University Museum by Sir Henry Acland and others.

He then went on to speak of present benefactors, and

closed with a forecast of the future of the school and a short reminiscence of the earlier meetings of the Association at Oxford, as follows:

"To-day our association numbers over 19,000 members, and we are expecting more than three times the number who visited Oxford in 1868. More than this—and it is, I think, a matter for hearty congratulation—the influence of our association has grown world wide, for since 1868 branches have been formed throughout India and in nearly all of our colonies. This truly remarkable growth of our association in magnitude, power and influence has been due to the fostering care and unremitting labor of many workers. Into our hands they have entrusted a great inheritance, and it will be our duty to see that no negligence nor unwise and ill-considered action on our part tend in any way to jeopardize its further growth and development and power for usefulness."

Address in Medicine.—Sir William Selby Church, Bart., President of the Royal College of Physicians of London, spoke "On Our Sanitary Needs, with Special Reference to the National Health."

Medicine, he said, having for its object the mental and bodily health of mankind is closely interconnected with the varying circumstances that bear on the conditions under which a people lives. The prosperity of the nation, the conditions under which the labors of the population are carried on, the state of commerce and the arts and sciences, all react on the health of the people, and nothing which concerns the life of the nation is foreign to the subject. Every advancement in science and its application to the arts has a bearing on medicine. To pure science it is directly indebted for means by which the various organs of the body can be examined, the presence of disease demonstrated, the changes in our bodies accompanying disordered health recognized, and, perhaps more important than all, the exact methods of science point out the way in which the more complex questions presented in living bodies should be studied.

It was in the year preceding the Oxford meeting that Lister read at Dublin his paper on the "Antiseptic Principle in the Practice of Surgery," founded on the results of his treatment of compound fractures, abscesses and wounds during the preceding three years. It was at this time also that the infectivity of tuberculous matter began to be generally recognized; twenty years before, Klencke had produced tuberculosis of the lungs and liver in rabbits by inoculation with human tubercle, but he did not pursue his investigations, and his experiments attracted little notice, and it was not until Villemin's work in 1861, and the account of his numerous and careful experiments published in 1868, that attention was again drawn to the subject. Villemin's work was carried on by Sir J. Burdon Sanderson, late Regius Professor of Medicine in this university, who explored and demonstrated the channels by which the tuberculous process is disseminated within the organism, yet many years had to elapse before Koch in 1882 demonstrated that the presence of the tubercle bacillus in all tuberculous degenerations was the essential element.

Growth of Bacteriology.—It was, he said, the adaptation of Pasteur's work and discoveries to medicine, and Koch's demonstration of the bacillus of tubercle in 1882, which led to the revolution which has taken place in conceptions of the nature and cause of many forms of disease, and he drew an interesting picture of Sir William Gull's descriptions of disease processes. How much more hopeful, he said, is the outlook now than when Gull said: "It is now universally acknowledged that the art of medicine is all but powerless in con-

trolling the large class of diseases called zymotic! It may be there do not exist nor may ever be formed by art antidotes to their poisons. But should it be otherwise my duty at this moment still seems clear—that I ought not to stir up your minds to search for such secrets of nature. Upon this search too much time has already been wasted, and an incalculable amount of life has been lost. Specifics will no doubt continue to be sought after, but preventive medicine will more largely obtain the suffrages of the best informed members of our profession. Truly, as he says in another place, "the knowledge which seems exhaustive to-day, may in the changing circumstances of the world be defective to-morrow." For it now seems probable that most, if not all of these diseases, as we already know of some, bear with them their own antidote, and that as Sir John Sanderson has said "Every injurious substance which is capable of being assimilated (in the physiological sense) by a living cell is also capable of exciting in it an abnormal reaction antagonistic to the first."

Internal Secretions.—Another most important step onward in physiological knowledge and its application to the treatment of disease was made when the connection existing between that group of symptoms known as myxedema and disease of the thyroid gland was pointed out. Sir William Gull himself, in 1873, was the first to draw attention to the cretinoid state supervening after adult age, but it was from the researches of Ord, Reverdin, Kocher, Horsley and Murray that the existence of what are spoken of as internal secretions of glands was suspected and proved. Neither in diabetes nor in morbus Addisonii has the administration of the pancreas or the suprarenal glands been followed by any marked or constant beneficial effect on the disease. The researches of Schäfer and Oliver have proved the physiological action of the extract of the suprarenal glands to be both constant and powerful, and further researches may lead to a better knowledge of the physiological functions of the internal secretions and enable therapeutic use to be made of them.

Tropical Medicine.—In other lines of research the progress made is not less remarkable. The ancients were well acquainted with the commoner forms of intestinal worms, although they were ignorant of the remarkable phases presented in their development. They have left full and accurate descriptions of the clinical symptoms produced by them and the means which should be adopted for their cure. Slowly and gradually the natural history of malaria and yellow fever has been worked out. Already the work done, mainly under the auspices of the Liverpool and London Schools of Tropical Medicine, has begun to bear fruit not merely by increasing knowledge of malaria and certain other forms of tropical disease, but by having in the short space that has elapsed had a marked influence in diminishing sickness and mortality in places which were so deadly to European life, that trade could hardly be maintained with them. Nor is it only in these hot-beds of fever that beneficial results have been obtained, as Professor Boyce's account of antimalarial measures taken at Ismailia shows. The result of the sanitary work put in action by the authorities of the Suez Canal has been eminently satisfactory. The attacks of malaria in a population consisting of about 1,000 or 2,000 Europeans and 7,000 natives have fallen from 2,089 in 1897 to 209 in 1903, and the mortality has correspondingly lessened. These highly satisfactory results have been obtained at comparatively small expense, the Canal Company having expended £4,400 in filling up and draining the marshy ground, whilst the special antimalarial forces—the Drainage and the Petroleum Brigades—

have together cost £720 a year, figures which contrast most strikingly with a previous "expenditure of £15,000 on works designed with the intention of improving the sanitary condition of the town and £13,000 in medicine and medical attendance," without the production of any beneficial results. The mystery surrounding the sleeping sickness of Africa has been partially dissipated by the discoveries of Castellani, Bruce and Nabarro, and the remarkable life-cycle of the trypanosoma is in a measure unraveled. A similar chain of events appears to occur in Texas fever, and probably in other morbid states the lower forms of animal life play a much more important rôle than is yet recognized. Recent investigations by Leishman, Donovan, Ross and Christophers tend to show that the condition of chronically enlarged spleen and cachexia we have been accustomed to ascribe to malaria is more probably dependent on another distinct microorganism.

Preventive Medicine.—The speaker then spoke of the outcome of the results of preventive medicine. He first contrasted the conditions as seen in Ancient Greece, quoting Plato. Roman sanitary science remains for the most part an unopened chapter in medicine, but it is certain that in the larger cities some municipal organizations similar to, if not identical with, those which had been in force in earlier Greek times were present. Before the time of Antonius Pius (A.D. 136) recognized medical practitioners were exempt from ordinary civil obligations and local taxation, but their numbers had so largely increased by his time that it became necessary to limit the number of recognized practitioners in each city who should enjoy this immunity; and Pliny, who seems to have had nearly as bad an opinion of the profession as Cato, complains that the law unduly safeguarded physicians, and that they alone could kill a man with impunity. The better regulation of the profession in this country may be said to date from the institution of the Royal College of Physicians in 1518, which was entrusted with the general supervision of all persons not graduates of the two English Universities of Oxford and Cambridge who should practise physic throughout England, and to the granting of a charter by Henry VIII. to the Barber-Surgeons twenty-two years later.

Medical Legislation.—In an extremely interesting manner he then traced the development of the humanitarian spirit throughout the Calvinistic times and showed the connection between the greatly increased interest in the humanities with medical legislation. These suggested the Anatomy Act of 1832 and the Medical Act of 1858.

Poor Law and Public Health Legislation.—Contemporaneously with the awakening of public opinion to the necessity for a reform in the constitution of the medical profession, by which the public might be able to discriminate between those who were and those who were not legally qualified to practise, the need for increased legislative power for sanitary purposes was recognized. The public mind had been aroused by the ravages of cholera, which spread through the land in 1831-32 and to a less degree in 1848-49; while the revelations of the conditions under which the laboring poor were living contained in the reports of Drs. Neil Arnott, Kay, Southwood Smith, Mr. Chadwick, and others to the Poor-Law Commissioners appealed to all but the most thoughtless, and prepared the way for sanitary legislation.

The dissolution of the monasteries and other religious foundations in the sixteenth century led to the whole country being flooded with pauperism, for however self-indulgent the ecclesiastics may have been, they had always exercised supervision over the poor on their

estates, and administered relief as required to those who were in the employment of the religious houses or of their numerous tenants. This deplorable condition of the nation gave rise in the early years of Elizabeth's reign to the present Poor Law, and during her reign, and that of her immediate successors, very stringent Acts of Parliament and municipal regulations were passed not only for the removal and prevention of nuisances, but also dealing with vagrancy and mendicity, and provision for the relief of pauperism and the care of the impotent poor. From that time onward numerous local Acts on a variety of subjects bearing on the National Health were added to the statutes, but no comprehensive scheme was instituted until we come down to the Victorian Era, and the passing of the Public Health Act of 1848 may be taken as the date of the rise of a fresh branch of medicine—Preventive or State Medicine. It was then that the State publicly recognized what Hobbes two hundred years before when writing "of the Commonwealth" had indicated as the function of the governing power. The health of the people, both bodily and mental, is the principal asset of the nation. Without a vigorous and energetic population no nation can make progress, and coincident with the cessation of progress is the commencement of decadence.

Speaking on several questions of Public Health he rehearsed the specifications of the Public Health Law, spoke of the Ineptitude of the Treasury Reports and commented on the Duties of Local Boards and Medical Officers.

Need for Supervision of the Sale of Foods.—The need for such increased supervision was forcibly brought to the attention of the commissioners appointed to inquire into arsenical poisoning. At the present moment there are no means by which the officers, medical or other, of County, Borough, Urban or District Councils who are responsible for the local administration of the Acts relating to the sale of food can enter the premises and obtain information concerning the nature or food-stuffs or the process of their manufacture.

The needs for sanitary food supervision were recognized, and he dwelt particularly on the folly of permitting patented foods to be placed on the market without proper chemical investigation. At present, he said, the maker of a foodstuff sold under a fancy name—Grape Nuts, Force Food, etc.—is under no obligation to submit to any authority the composition of its ingredients. It is only after the foodstuff has been placed on the market that any control can be exercised by samples being taken for analysis, which, although showing the absence or presence of deleterious matter, gives but little guide to the suitability and value of the preparation as a food. The enormous bulk of these fancy and largely advertised foods on the market, both home made and imported, renders it essential that further power in the supervision of food should be placed in the hands of the health authority.

Rural Hygiene.—The necessity for sanitary regulations being so much greater in large towns with their dense populations, manufactures, and difficulty in disposing of their refuse naturally led to the earlier efforts in the direction of improved sanitation being especially directed to their most urgent needs, and hence has arisen that the methods of sanitation applicable to large towns have been accepted by the public as the only ones, and are imitated in rural districts to the great loss and harm of the community. It is greatly to be regretted that Mr. Chadwick's doctrine that not only domestic sewage but that all sorts of refuse are best removed by the scour of running water has received

such general adoption. Whilst the advantages of the present system of sewerage, although ruinously expensive, is undoubtedly very great in our large towns, and must perhaps be perpetuated, it is not in accordance with common sense that it should be recklessly applied throughout the country. The disposal of the liquid sewage not only of our large towns, but of our villages, villa residences, and country gentlemen's houses, has become a most difficult problem for modern sanitarians. No one has any more justification in injuring his neighbor by wilful or culpable negligence of sanitation, or by the means he takes to protect himself from the evils he has created, than he has in appropriating his neighbor's goods or trespassing on his premises. "In rural and semirural districts the individual ought no more to ask others to keep him clean than he asks others to feed him or clothe him." The conscience of the public and of the individual needs awakening to the immorality of injuring the public weal for private convenience. We daily see instances of small towns and villages expending vast sums of money in systems of sewers and sewerage works. A system of sewerage necessitates a constant water supply far in excess of the needs of the inhabitants for domestic use; it introduces a source of danger of pollution for the springs and wells of the locality, and renders necessary the introduction of water-works to supply uncontaminated water—if, haply, such can be found—brought, it may be, from a distance, and entails a heavy and permanent charge on the locality. The interest of the money thus spent would in many instances provide for the necessary expenses which a proper system of scavenging would entail.

He closed with some remarks on Urban Hygiene which bore more particularly on the problems in London.

(To be Continued.)

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting held May 12, 1904.

The President, Samuel Wolfe, M.D., in the Chair.

Physicians' Bookkeeping.—Dr. Mordecai Price read a paper with this title. He stated that in the early years of his practice he had tried almost every kind of book for the purpose on the market, purchasing a new kind almost yearly, which became very expensive as well as annoying, after which he finally began keeping merely a list of calls, in book form, which were afterward entered separately, visit by visit, in a ledger, each patient being given a page, the transferring being done either at the end of a day or a week. This method he felt was incomparably better than the book ruled thirty-one spaces (one for each day of the month), as the latter gave no room for memoranda, while in the ledger one could enter in detail the time consumed, particulars of services rendered, etc. With this method, the patient's account is concentrated, the quarterly sending out of bills is much facilitated, and if a patient asks for an itemized statement, it can be rendered in a very short time; and no matter how long standing the account, it is of easy reference. He considered this method was one that would be sustained in a court of justice, citing an instance in which he had operated on a difficult case of gall-stones, the patient dying; he was compelled to present his bill in the Orphans' Court, and the judge questioned the amount thereof. With the ledger kept in this form, he was able to state exactly the character of the operation and the difficulties encountered, with the result that his bill was allowed. In reference to collecting bills by legal measures, he felt, as a rule, there was very little accomplished thereby.

Dr. L. W. Steinbach felt that the method outlined by Dr. Price would not be sufficient in court, as he stated that every entry must be made first in a daybook. His method is to keep a visiting list, with each visit to be made marked with a dot, and when the visit has been made he makes a stroke in place of the dot. In addition, he carries a prescription blank, put up in pad form with a stub to it, on which he enters a brief history of the patient's condition, the day, date and hour, at the time of the visit; the work at the office being entered in the same manner on a sheet, but a little more fully. The entries from these blanks are afterwards transferred to the ledger. He recommended that bills be sent out every six months (not more frequently than every three months), believing that this was ample time for the regular patients, and that most of the transient patients who would pay paid as they went along. He believed that the best method of collecting was to have accurate bookkeeping and send out accounts every six months, recommending the regular commercial double entry bookkeeping. With the books kept in this manner, an itemized statement can be furnished in very short order, if requested. He also laid stress on the importance of accurate history keeping.

Good Mode of Collecting.—Dr. Wilson Buckby stated that it was a notorious fact that physicians were the poorest bookkeepers in the city, and emphasized the importance at the present time, with the large increase in the number of physicians, of having the accounts kept in such a manner that they would be sustained in court. He did not feel that Dr. Price's method would be sustained in the courts, as he did not view it as a book of original entry, and recommended a combination daybook and ledger, wherein would be enumerated the detail of the services, the charge, the time spent, and expense to which the physician was put for apparatus, etc. He also referred to the fact that hieroglyphics, such as "O" for office visits, or a dash or cross, etc., indicating visits, would be entirely excluded, the requisites being that it must be a book of original entry in plain writing. He believed that in many instances the doctor was his own best collector, and that in a practice of about a quarter of a century he had had two collectors. The method of the first was to go from house to house and if they could not pay him anything get them to name a date when he would call, at which time he was sure to be on hand. The method of the second was quite similar. He stated that since discontinuing the driving and going out at nights except in cases of urgency his practice had materially decreased.

The Legal Way.—Dr. I. C. Gerhard stated that he had frequently been called into the Orphans' Court to prove his claim against a decedent's estate, and that he felt the subject of physicians' bookkeeping resolved itself into three heads: (1) The easiest way to keep books; (2) the legal way, and (3) the easiest legal way. He stated that there was no law on the statute books requiring that the books be kept in a certain way, and also that he did not think the judges desired to be exacting, the requirement being that the book should contain a daily entry of each visit, with the name of the patient and list of the medicine furnished, with the price which custom has fixed for the service. He stated that he had a claim ruled out in the Orphans' Court which had been kept in a thirty-one column book, and that in the same case an iceman had merely presented slips of paper and had his claim admitted. He recommended that a page be devoted to each patient, in which the services, etc., be entered in detail, and that the bills be sent out monthly; and believed very good results would be attained by this method.

Dr. J. Cardeen Cooper related an instance in which he had a bill reduced in the Orphans' Court from \$5 a visit to \$2 a visit, the judge ruling that that was the customary fee in this city, notwithstanding that the patient had previous to his death paid him \$5 a visit, as the book showed no evidence of the acquiescence in such a fee by the patient.

Dr. Henry Beates, Jr., referred to the necessity for the books showing the name of the party to be charged, the name or member of the family to whom the services were rendered, date and services in detail, charges, etc., without which the books would be useless in a court of law.

Dr. A. Bern Hirsh stated that he had talked with a legal gentleman of large experience in Orphans' Court work, and that in order to secure the introduction of the books, the entries must be able to speak for themselves; in other words, the entry in the book of original entries should contain the name of the person responsible for the account, the date, the place where the service was rendered, the name of the patient, the nature of the illness, the nature of the treatment, and the charge. He called attention to the fact that the loose-leaf ledger had been decided to be legal, and believed that this method with a convenient ruling would be a timesaver to the physician. He exhibited some sample pages thereof.

Monthly Bills.—Dr. Louis Jurist stated that he had never attempted to collect a bill legally, and felt that the standing of the professional man in this country was too commercial. He believed that the charge should be regulated according to the circumstances of the patient. He did not approve of attempts to collect bills legally; and believed that the best result would be obtained by keeping the books posted up regularly, sending out bills once a month; and to perfect strangers, so soon as the services are rendered.

Dr. Walter L. Pyle deprecated the method of a "per visit" charge, and believed that the bill should be regulated, (1) by the amount of service rendered, and (2) by the circumstances of the patient. He believed the bill should be sent "For professional services rendered," and did not believe much success would be attained by going into court to collect a bill, with the exception of the Orphans' Court, with which latter, being an ophthalmologist, he had had no experience.

Dr. Wendell Reber felt that better results would be attained by sending out bills more frequently, believing that they should, excepting in special cases, be sent out monthly, while many of the general practitioners only sent them out once in two, three or six months. He referred to a case in which he had rendered a man a bill for services rendered to his wife and child, at the end of the month, and that this man requested that this be done in the future at any time any services were rendered to any of his family.

Send Out Bills Regularly.—Dr. A. M. Eaton felt that many physicians were very reckless in the matter of sending out bills, as many sent them out only semi-annually, whereas he felt better results would be obtained by being more frequently rendered. He believed that they should be rendered at not longer intervals than three months. He referred to the case of a physician who asked a friend to loan him \$100. The friend requested that he allow him to go up to his office and make out some bills for him, which was done, with the result that bills for \$300 were made out in less than ten minutes, over \$150 of which was paid in five days. He referred to the immense amount of money which was lost by the profession. He also referred to the large number of people who were able to pay

who sought free treatment at clinics, etc., which he felt should be prevented if possible, and also the people who make a practice of not paying the Doctor's bill. He believed that the formation of an association with the support of the county society, for the collection of accounts, with collectors personally calling on the debtors, would be of much value.

C. W. Van Artsdalen, Esq., of the Philadelphia Bar, stated that a book to be admitted in evidence in the courts need not be in any particular form, so long as it possessed the requisites of a book of original entry, which were (1) that the entries be made at or about the time the services were rendered; (2) the date of the service; (3) the name of the party charged; (4) the designation of the party to whom the services were rendered; (5) the services in detail, and the charge therefor, together with the costs of apparatus, etc. In order to prove the claim in the Orphans' Court, all these requisites must appear on the face of the book, as this being a proceeding in which the other party is dead the claimant is not a competent witness. In a proceeding in the Common Pleas against a living debtor, the physician would be allowed to testify in his own behalf, and in that instance might be permitted to use a book which, by reason of being made in hieroglyphic characters, could not be offered in evidence, as a memorandum to refresh his memory, provided the said memorandum was made at or about the time the services were rendered; but the books should always be kept in such a manner that they will possess all the requisites of books of original entry and be admissible to any court having jurisdiction in these matters.

Dr. J. Thompson Schell referred to the case of a physician who had died with a considerable amount of money owing him, but by reason of the fact that nobody could understand his bookkeeping his widow was able to collect but very little thereof. He recommended that the books be kept in such a manner that anyone could understand them, and felt that every man owed it to those dependent upon him to do so, as accidents are so liable to occur.

Dr. William H. Good referred to the class of patients who after paying a physician one or two visits and running up a bill go elsewhere, many times in addition boasting that they do not intend to pay the Doctor's bill, one of this character having recently come under his care.

Value of Organization.—Dr. Frank C. Hammond referred to the practice in Augusta, in which city the profession is thoroughly organized, where each physician has in his office a large printed card stating the fee for each office visit, each house visit, each of the various operations, etc., below which price no physician will take a case. He considered that this consistently demonstrated the value of organization of the medical profession.

Rid to Community of Illegal Practitioners.—Dr. Henry Beates, Jr., referred to the fact that the courts would fix the fees of a physician at such an amount as has been decreed by custom. He urged the necessity for the protection of the regular physicians by statutory enactments calculated to rid the community of illegal practitioners. He also remarked the fact of the attack upon the constitutionality of the legislation providing for medical State board examinations as a prerequisite to the permitting of physicians to practice, citing from the opinions of eminent jurists who had sustained it. He believed that the profession should receive more and higher recognition, which could best be attained by protective legislation and the eradication of the irregular practitioners.

BOOK REVIEWS.

MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS: INORGANIC SUBSTANCES. By CHARLES D. F. PHILLIPS. Third Edition. Longmans, Green & Company, New York, London and Bombay.

It is now twenty years since the first edition of Phillips' *Materia Medica* was projected, and ten years since the second edition appeared. During this time an immense advance has been made along the lines of pharmacological research, and we are pleased to note that in this third edition the author has kept abreast of this new advance, and practically rewritten his *Pharmacology*, as this third edition is an almost entirely new work. Most of the sections have been revised and rewritten and a full discussion has been accorded a number of the new remedial agents.

We feel that the factor which is of particular value in this work is the rich therapeutic experience of the author and the full therapeutic discussions which have been incorporated in it. These far outreach the discussions on pharmacology proper, and are so arranged as to make, we believe, a very useful and practical work on general therapeutics.

The captious might be inclined to believe that a little too much attention has been given in the therapeutics to a haphazard gathering of individual experiences from the medical journals, but when it is borne in mind that the author has digested these experiences of others and incorporated them with his own, this criticism seems of little weight.

The work is extremely suggestive, even though at times the pharmacological discussions fall below the level of modern research. It can be recommended as a practical and useful volume, particularly for practitioners.

PAIN AND ITS INDICATIONS. By Dr. E. E. HILL. G. P. Engelhard, Chicago.

DR. HILL'S *MANUAL* contains many valuable suggestions for the treatment of pain. It is much more, however, than merely a compend of remedies that can be used to alleviate pain. Pain, while one of the most important symptoms of disease, is also a true conservative process since it points to the necessity for the removal of some pathological condition to which it is due, rather than merely the deadening of discomfort by anodyne drugs. Dr. Hill has, we think, avoided the Scylla of merely symptomatic treatment of pain without falling into the Charybdis of writing a complete textbook of all the ills accompanied by pain to which flesh is heir. As it is, however, we doubt whether the book will not prove a source of some unthinking medication by those who will not recognize its diagnostic as well as therapeutic helpfulness.

A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS. By Dr. J. H. MUSSER. Fifth Edition. Revised. Lea Brothers & Company, New York and Philadelphia.

It is undoubtedly one of the most encouraging signs in present-day medicine here in America that there should be so much demand for books on diagnosis. It is not so long since the great cry was for books on treatment. There has come a very general realization, however, that treatment must mean very little unless the exact nature of the disease from which the patient is suffering be diagnosed. It is especially encouraging, then, to find that so excellent a volume as Prof. Musser has provided, so thoroughly scientific and complete, has received the attention it deserves and goes so rapidly into its fifth edition.

The present edition has been increased considerably in

size and yet there is not a single thing in its pages that is superfluous. Indeed, in spite of its apparent length there is much evidence of judicious condensation. None of the most modern suggestions have been omitted. In this respect indeed the work is very full and contains a number of excellent tables sure to be helpful to the busy physician.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. VON BERGMANN, of Berlin, Prof. E. VON BRÜNS, of Tübingen, and Prof. J. VON MIKULICZ, of Breslau. Volume 2, translated and edited by Prof. WILLIAM T. BULL and S. C. P. FLINT. Lea Brothers & Company, New York and Philadelphia.

THE second volume of this system has just appeared. It is a worthy companion of the first, and all that we have had occasion to say in commenting on the first volume, regarding the general character of the work, its scope, its completeness, we can thoroughly endorse in our review of the second volume.

The present volume deals more particularly with the surgery of the neck, thorax and spinal column. Malformations, injuries and diseases, in their respective aspects, are very thoroughly considered in twenty-six chapters. Nothing is left out that we can find, every possible condition and complication of a surgical nature that has ever been described is here considered in a sound, practical and thoroughgoing manner.

In one regard we note a distinct advance over the first volume, in the large amount of illustrations in the present text. It may be that the subject has lent itself more readily to illustration; at all events, the value of the volume to the practitioner is vastly enhanced by the rich store of well selected and useful illustrations.

The work is too large to consider in detail, so that we can practically only repeat our expression of opinion that up to the present time no work of the same class has appeared in English. The completed system promises to be a classic for all time.

ADOLESCENCE, ITS PSYCHOLOGY AND ITS RELATIONS TO PHYSIOLOGY, ANTHROPOLOGY, SOCIOLOGY, SEX, CRIME, RELIGION AND EDUCATION. By G. STANLEY HALL, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. In Two Volumes. D. Appleton & Company, New York.

To faithfully mirror within the narrow confines of a book review some of the important features of these volumes of Dr. Hall's is beyond the ability of the present writer. He can only state his impressions, believing the work one of such transcendent value as to leave the mere words of acclaim a shadowy mockery of the real thing.

No work of such a serious and thorough character bearing on the growing human being is known to us. It is, we believe, destined to be a classic for all times and a work that should be made a part of every man's liberal education.

To the physician who understands and correctly estimates his large opportunities as a guide to the father and mother in the healthy development of the family, Dr. Hall's work makes a special appeal. The scientific language, at times overpowering in its technicalities, is no bar to the general practitioner's understanding, and from its many pages much inspiration and practical concepts may be gathered.

We believe this an invaluable work—the result of many years of hard work by one of America's most brilliant teachers—and one deserving, if not demanding, a place in the library of every physician of intelligence and cultured aspirations in this country.

PROGRESSIVE MEDICINE. Edited by Dr. HOBART AMORY HARE. Volume 2, June, 1904. Lea Brothers & Company, New York and Philadelphia.

THE second number of the new series of Progressive Medicine follows the pattern of its June predecessors in taking up the Surgery of the Abdomen, including Hernia, by W. B. Coley; Gynecology, by John G. Clark; Diseases of the Blood and of Metabolism, by Alfred Stengel, and Ophthalmology, by Edward Jackson.

The marked reduction in price of this quarterly places it within the power of every practitioner to really keep abreast of the times, and one need never be in the "back woods" with this incomparable series of digests before one; for these are not mere abstracts, or clippings, pasted on sheets and thrown together on a page by the printer's art, but carefully worked over, compared and critically selected contributions which reflect the distinct "Fortschritte" made in medical science and the practitioners' art.

GRAVES' DISEASE WITH AND WITHOUT EXOPHTHALMIC GOITER. By WILLIAM HANNA THOMSON, M.D., LL.D., Physician to the Roosevelt Hospital, New York, formerly Professor of the Practice of Medicine, New York University Medical College. William Wood & Company, New York.

DR. THOMSON'S purpose in this monograph is to emphasize the fact that the symptoms of Graves' disease are by no means necessarily connected with any disturbance of the thyroid gland, or of its accessories. He gives a series of clinical histories of 28 patients, in whom there was no evidence of any involvement of the thyroid, and compares their cases symptom by symptom with the clinical histories of 42 patients who had the usual goiter seen in what is called exophthalmic goiter. Dr. Thomson succeeds in making out a very good case for his theory. There are many physicians now who consider that certain latent forms of Graves' disease may exist without any symptomatic involvement of the thyroid. The evidence may not yet be a demonstration, but it is very nearly so. There is no doubt that these clinical studies will be of value for those interested in Graves' disease and cognate affections.

A MANUAL OF FEVER NURSING. By REYNOLD WEBB WILCOX, M.A., M.D., LL.D., Professor of Medicine in the New York Post-Graduate Medical School and Hospital. P. Blakiston's Son & Co., Philadelphia.

DR. WILCOX'S monograph on the treatment of fever has a very interesting subject. The manual includes chapters on all the forms of fever, the continued and intermittent types, as well as the exanthematous and also the thermic form, with its phases of heat exhaustion and insolation, which are of such special interest at the present season of the year. The book generally is of rather theoretically conventional character with the air of being a compilation instead of an expression of results gained from actual practice. There is not as much in it as in most text-books of medicine with regard to these special subjects, so that we find it difficult to understand just what place the monograph is meant to take for the student and practising physician.

INTERNATIONAL CLINICS, a Quarterly of Illustrative Clinical Lectures and Specially Prepared Clinical Articles on Treatment, Medicine, Surgery, etc. By Leading Members of the Medical Profession Throughout the World. Vol. I., Fourteenth series. J. B. Lippincott Company, Philadelphia.

THE present volume of the International Clinics contains some excellent practical and suggestive articles. The first article in the volume, "The Chloride Reduc-

tion Treatment of Parenchymatous Nephritis, by Widal and Javal," is especially likely to attract attention. The subject is very well stated in the second sentence—"With four arteriosclerotic patients suffering from interstitial nephritis, the daily absorption of ten grams of sodium chloride was found to produce neither edema nor any other disorder. Whereas, with two patients out of three suffering from parenchymatous nephritis, this dose gave rise to extensive edema." The conclusion of the study is that the nature of a food is less important in nephritis than its content of salt.

Other interesting articles in this volume are on the therapeutic applications of colloid silver, by Drs. Netter and Salomon, physicians to the Paris hospitals, and two articles on the non-operative treatment of various pathological conditions of the genital tract in women. An especially interesting article is that by Dr. Pritchard, of New York, on peripheral neuritis. In general it may be said, however, that too much space is given to an excellent but after all conventional review of the recent literature—a feature which every medical journal seems to consider it advisable to emphasize just now. Old subscribers to the Clinics used to rejoice in the fact that it was different from the others.

WHAT WE OWE TO EXPERIMENTS ON ANIMALS. By STEPHEN PAGET. The Scientific Press, Ltd. THE CASE AGAINST ANTIVIVISECTION. By STEPHEN PAGET. The Scientific Press, Ltd., London.

THESE two little volumes which the writer calls pamphlets are really condensations of longer articles. They contain in brief all that it is necessary to know in order to convince any doubter of how much has been accomplished for medicine by experiments on animals and how much harm therefore would likely result if the anti-vivisectionists were to succeed in their program of the limitation of animal experiments. Not infrequently it happens that physicians wish to know where they can obtain in condensed form just such information when for some reason in their towns the anti-vivisection crusade becomes more active than usual. Nothing that we have ever seen so completely fulfills this purpose as these two little volumes. Here there is ample material for demonstration provided, of course, they are approached with good will.

BOOKS RECEIVED.

ELECTRODIAGNOSIS AND ELECTROTHERAPEUTICS. By Dr. Toby Cohn. Translated by Dr. F. A. Scratchley. 8vo, 280 pages. Illustrated. Funk & Wagnalls, New York and London.

MEDICAL AND SURGICAL REPORT OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK. Volume 6. 8vo, 331 pages. Illustrated. Trow Directory Printing and Bookbinding Co., New York.

TUBERCULOSIS AND ACUTE GENERAL MILITARY TUBERCULOSIS. By Dr. G. Cornet. Edited by Dr. W. B. James. 8vo, 806 pages. W. B. Saunders & Co., Philadelphia, New York and London.

RAILWAY AND OTHER ACCIDENTS, WITH RELATION TO INJURY AND DISEASES OF THE NERVOUS SYSTEM. By Dr. Allan McLane Hamilton. 8vo, 351 pages. Illustrated. Wm. Wood & Co., New York.

DISEASES OF THE INTESTINES AND PERITONEUM. By Dr. H. Nothnagel. Edited by Dr. H. D. Rolleston. 8vo, 1,032 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

A TEXT BOOK OF MECHANOTHERAPY, MASSAGE AND MEDICAL GYMNASTICS. By Dr. Alex. V. Grafstrom. Second edition. 12mo, 200 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.